COMMISSION OF INQUIRY
RESPECTING THE MUSKRAT FALLS PROJECT

Transcript | Phase 2 Volume 3

Commissioner: Honourable Justice Richard LeBlanc

Tuesday 19 February 2019

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. Shaffer, you remain affirmed this morning, and Mr. Learmonth, when you're ready.

MR. LEARMONTH: Thank you. I'd first like to enter some additional exhibits. P-01804 to P-01806, P-01813 and P-01964.

THE COMMISSIONER: Those will be entered as numbered.

MR. LEARMONTH: Thank you.

Okay. Now that Exhibit P-01964 has been entered – that's the Recommendation For Award and Summary Report. Are you familiar with that document? I think we referred to it yesterday, Mr. Shaffer.

MR. SHAFFER: I am.

MR. LEARMONTH: Okay. Perhaps you could – I'd ask Madam Clerk to bring up page 16 of that exhibit – 01964. And Mr. Shaffer, I'd ask you to refer to the – that exhibit – it appears on your screen – and also turn back to page 28 of your report. And perhaps you can give a further explanation of that matter.

MR. SHAFFER: Sure.

CLERK: Do you have a page number for this one?

MR. LEARMONTH: Page 16 of the exhibit.

MR. SHAFFER: Terrific. Thank you.

MR. LEARMONTH: Is that the correct page, Mr. Shaffer?

MR. SHAFFER: It is.

MR. LEARMONTH: Right.

MR. SHAFFER: This is the source document that I used to prepare the chart that was on page 28 where I discuss the LMax hours and evaluated price. And so if you could page down a little bit – that's good. Is there some way to make that a little bit smaller so that it all fits? That's better. Okay.

When you take a look at this document on how the bid evaluation team evaluated the CH0007 work package, you can see that you have here the line marked contract price per award, and you can see the various numbers in there. And the second column, I believe, is Astaldi, and the column next to Astaldi, to the right, is Aecon. And you can see the contract price per award being the difference of about – looks like about a half a billion dollars – $1.067 billion for Astaldi compared to $1.75 billion [sp. $1.575 billion] for Aecon. And the main driver of that difference is a non-labour component: the difference between the 451 for Astaldi, which is two lines up above that, versus 917 million for Aecon. So that explains about half the difference between the evaluated price.

When you go below that, and you see the total person-hours included in the bid, the 6.8 million for Astaldi and the 6.8 million for Aecon, and those are the numbers that I listed on the chart on page 28 in terms of the labour hours.

In terms of the dollars that's listed on page 28 is actually the total evaluated price, which is the $1.138 billion, which is the second line from the bottom, versus the $2 billion for Aecon. And the main driver of that difference – of what caused the additional increase in that was the LMax line. You see that line that says LMax: for Astaldi, it's $64 million, and for Aecon, it's $440 million. So that makes up, basically, the other half of the difference between the two contractors for the evaluated price.

When you go down to total person-hours, which – in the evaluated cost, including the LMax, which is the last line on this document, you can see Astaldi is 7.6 million and Aecon is 14.4 million.

And I hope this clarifies it for the Commissioner.

MR. LEARMONTH: Yeah. So just to go over that again. The LMax was not a fixed amount or set by Nalcor. It was selected by the contractors who were bidding. Is that correct?

MR. SHAFFER: Yes.

MR. LEARMONTH: Yeah.

MR. SHAFFER: Yes, it's the contractors that decided what the LMax was going to be.

MR. LEARMONTH: In their – for their (inaudible) –

MR. SHAFFER: In their bid submission.

MR. LEARMONTH: Yeah, okay. Okay, I think that clarifies that point. If not, I'm sure you'll be – you know, the other counsel will raise it in cross-examination. Thank you very much,

Turning to page 50 of your report, Mr. Shaffer. Here you do a review of the EPCM and owner's cost, and you refer, on line 7 of page 50, to – that "Included in the DG3 budget was a work package for Project Management… "

Would you please take us through your review of this topic?

MR. SHAFFER: Yes. The budget, as it says here, included a line for project management, and it was broken up in the budget between two – what I would call work packages in terms of the way it was designated. One was SM0714 and the other was XX0100.

And, as of March 2018, according to the financial forecasted cost, the total of those two areas was $1.118 billion. In the base estimate combined it was $571 million with – and you – including escalation of $36 million, and then there was a line for allocation of historical costs.

So what happened was, costs were incurred prior to, I guess, the budget being finalized; it was included in the budget and then they allocated $105 million of that cost to these work packages.

MR. LEARMONTH: So that would be that – the – that would include costs incurred before the date of sanction.

MR. SHAFFER: Yes.

MR. LEARMONTH: Okay.

MR. SHAFFER: So, when you compare the forecast of a $1.018 billion to the total estimate of $712 million, you have an overrun here of $406 million for that – for this category.

And the reconciliation of that overrun – basically it's a result of increased staffing due to contractor performance and schedule extension. And the way it's shown in the Nalcor budget is that, of the $406 million overrun, we see that $244 million of it is still unallocated. It's been authorized through the AFE process, but again, it just hasn't been committed to a particular class yet –

MR. LEARMONTH: Okay.

MR. SHAFFER: – but it's in the dollars.

MR. LEARMONTH: It's in the budget.

MR. SHAFFER: Yeah.

MR. LEARMONTH: Yeah.

Okay, so you – on the top of page 51 you state that the $406-million overrun is attributed to the time extension of the project due to contractor performance issues and unallocated budget. That's what you're referring to –

MR. SHAFFER: Yes.

MR. LEARMONTH: – correct?

MR. SHAFFER: Yes.

MR. LEARMONTH: All right, line 3 of page 51 you – under the heading DG3 Base Estimate – can you take us through your work on that subject?

MR. SHAFFER: Yeah, I mean, this is just a – the written summary of what I just testified to – where we got the numbers from. And, as I testified to, it was between the two work packages, totalling $571 million; that was broken down between the two categories.

And we talk about the historical costs being transferred, and then, with the escalation it brought a total of – up – the total base estimate up to $712 million.

MR. LEARMONTH: Yeah.

MR. SHAFFER: Now I just testified that the – it was – the historical costs were incurred prior to sanctioning, but it looks like to us it didn't transfer into this package until January of 2014.

MR. LEARMONTH: All right.

Now you refer to the fact that, at some point during the execution of the contract, that Nalcor switched out SNC-Lavalin as an EPCM contractor, and introduced an integrated project management approach.

MR. SHAFFER: Yes.

MR. LEARMONTH: You refer to the fact that the – this was announced in March 2013. Can you tell us whether there was – that was a gradual – there was a gradual reducing of SNC's role from that of EPCM contractor to part of the integrated management team, or did it happen only on one date?

MR. SHAFFER: No, the process started in 2012 and it became announced by Mr. Bennett in March of 2013. And then there was another contract that was entered into with SNC to change it from an EPCM contract to, I guess, to engineering services only in 2014.

MR. LEARMONTH: Yeah.

Did this reduce the role of SNC-Lavalin?

MR. SHAFFER: Yes, it did.

And I talk about this later in my report, but SNC-Lavalin, under the original EPCM role, had many responsibilities. There was a matrix that was – a responsibility matrix that was prepared that basically broke up the responsibilities between Nalcor and SNC, I believe, in 2012. And then, based on an answer that we received from Nalcor of how the role change after the change to the integrated team, that SNC – well, it was just for engineering services only.

MR. LEARMONTH: All right.

Line 19 of page 51 – you have a brief discussion of cost growth of project management. Could you take us through that, please?

MR. SHAFFER: Yes.

Again the cost growth for this package was $406 million and it was mainly attributable to the increase in project management staffing due to contractor performance issues and schedule extensions. In particular, there were three AFEs where it looked like there was increase in staffing for this category – about $372 million, which really makes up the majority of the $406 million.

MR. LEARMONTH: All right.

Then at page 52 you state your observations and findings, paragraph 5.5. Could you read that into the record please?

MR. SHAFFER: Yes.

"During our review of Project Management – EPCM and Owner's Cost we observed and found the following which contributed to the differences between the estimated costs of the Muskrat Falls Project at the time of sanction and the costs incurred by Nalcor during project execution: The cost growth experienced in owners cost and overall project management is a result of experiencing contractor performance issues and schedule extensions requiring additional project management and other services required to execute the project."

MR. LEARMONTH: Okay.

Next we'll move to your analysis of CH0009, which is the construction of the north and south dams. And your review of this topic starts on page 53 of your report.

MR. SHAFFER: Yes.

MR. LEARMONTH: Could you take us through your findings on page 53 please?

MR. SHAFFER: What – to the extent I could, sure.

MR. LEARMONTH: Yeah.

Well, I know –

MR. SHAFFER: It's redacted.

MR. LEARMONTH: – there are a lot of redactions, but is there anything you can say about that?

MR. SHAFFER: Well, the – other than – I mean, we could talk about what's here, and the base estimate for this work package was $117 million. The contract award amount was $287 million. And there was approved change orders and back charges of $91 million.

MR. LEARMONTH: So, that's pretty well as far as you can go based on the redactions –

MR. SHAFFER: Yes –

MR. LEARMONTH: – correct?

MR. SHAFFER: – that's pretty much all I can say about it.

MR. LEARMONTH: Okay.

Page 54. Please turn to that page and take us through that?

MR. SHAFFER: The – let's start at the top. I mean, as I just testified to, the base estimate was $117 million. There was escalation added to it to bring the base estimate to a new number. They went through a RFP process after that, and the RFP was issued on October 22nd of 2014 to three approved bidders. And eventually there – the package was awarded.

It was originally scheduled to be awarded December 23rd of '14 but wasn't awarded to – until August 5th of 2015. And there was really two main reasons. One was the uncertainty of the completion date of other work packages it interfaced with. And two, the estimated contract value exceeding the budget by over 50 per cent. And as a result, Nalcor decided to explore a cost-reduction program, which I guess held up the award of this package.

MR. LEARMONTH: Is that a standard procedure in these circumstances – to explore a cost-reduction program?

MR. SHAFFER: It makes sense to me.

MR. LEARMONTH: Yeah.

MR. SHAFFER: It makes sense.

MR. LEARMONTH: Yeah. All right.

Now the contract, paragraph 6.5 of page 54.

MR. SHAFFER: The contract eventually was executed on October 29, 2015 with Bernard-Pennecon Joint Venture at a value of $287 million. And my guess – can't really say too much about the redacted versions, but the difference between the contract award amount of the $287 and revised budget amount was primarily due to indirect labour rate and hours being greater than what was indicated in the estimate. And specifically, the indirect labour cost in the contract award amount was $94 million greater than what was in the estimate. Okay?

MR. LEARMONTH: You then referred to communications between Mark Turpin and Stan Marshall beginning online 21.

MR. SHAFFER: Yes.

We were –

MR. LEARMONTH: Who was Mark Turpin, by the way?

MR. SHAFFER: He was a former Nalcor employee.

We were provided an email that was written to Stan Marshall on May 22, 2016 from Mark Turpin, who was a former package lead/area manager for the North and South Dams. And he expressed concerns regarding the award of this work package, specifically he stated that: *"As the Area Manager, I was the lead team Member responsible for the tabulation of the award recommendation to LCP Management. After a year of technically reviewing the proposals both technical and commercial scores, an award recommendation was made promoting*

HJOC/Dragadoss JV… After I was assigned to the North Spur in April of 2015, I was surprised to learn that the award went to Barnard Pennecon JV….”

We followed up with Mr. Turpin. We had an interview with him on December 2 of 2018, and he indicated to us – and again, these are quotes: *“We – myself and Roy* [Lewis] *did bid recommendation and we recommended the project be awarded to an alternate, not Barnard Pennecon, it was a Joint Venture between Dragadoss and H. J. O’Connell.”*

We asked him whether his team’s evaluation was completed and submitted and he responded: It was. He said: We put a nice bow on it and said here you go, here you go guys, here’s the package. As of the date of issuance of our report, we couldn’t locate the original bid award recommendation completed by Mr. Turpin and Mr. Lewis and their team.

MR. LEARMONTH: So you did a search in the records that were available to you for that document did you?

MR. SHAFFER: We did, but my understanding of that search is that, at that time, there was problems with the system. So it very well could be in there, we just don’t have it, if that’s the case.

MR. LEARMONTH: Yeah.

So were you able to complete your review of this topic? It would have been a little bit later?

MR. SHAFFER: We did. I mean, what – what we did do – to talk a little bit further about this – we did review the bid award and recommendation for this package that was completed by the bid evaluation team that took over after Mr. Turpin left the evaluation team. And in reviewing the documents, he noted the following: that *“…there has been a significant delay in bringing the Package to this point. The development of the Evaluation Plan and initial assessment of the bids received was carried out by a Bid Evaluation Team … that included Roy Lewis (Contract Administrator) and Mark Turpin (Package Lead/Area Manager). In May, due to project resource requirements and other circumstances, bid evaluation activities were taken over by Ken McClintock, John Mulcahy, Ed Over and Greg Snyder. This team completed all activities necessary to bring this Package to this Recommendation stage.”*

It was further explained in this document that: *“Although the original schedule was to award the package by Dec. 23, 2014, two serious issues prevented this from occurring. Firstly, there was a great deal of uncertainty around the completion dates related to the construction of the powerhouse, spillway and gate installation. As CH0009 delivery performance is highly dependent on interfaces with the other contractors executing this scope, it would not be prudent to award CH0009 without more certainty on completion dates. The focus of this strategy was claims avoidance. Secondly, the Estimated Contract Value exceeded the budget by more than 50%. It was decided, therefore, to carry out a cost reduction program to identify areas of cost savings, which could be achieved.”*

And the document also noted that the bid evaluation team “…*believed an alternative evaluation methodology would be more suited to the nature of the work. More specifically, the BET*” – which is the bid evaluation team – “*believed that the evaluation should focus more on project execution, schedule and quality of the proposal project management teams.*”

And it – this document recommended that “*CH0009 – construction of the North and South Dams be awarded to BPJV* [Barnard-Pennecon JV] … *BPJV's defining factors are schedule assurance, solid execution plan and an experienced project team.*”

MR. LEARMONTH: So just to summarize, the mister – the work of Mr. Turpin, Lewis and others on the team. They understood that the contract was to be awarded to who? I think you said H. J. O’Connell and Dragados?

MR. SHAFFER: Dragados and H. J. O’Connell, joint venture.

MR. LEARMONTH: Yeah. And then there was a change in the award of that contract, correct?

MR. SHAFFER: Correct.

MR. LEARMONTH: Yeah.

MR. SHAFFER: And so we reviewed Nalcor's bid evaluation and award recommendation policy and stated that: Proposals are assessed fairly against a set of pre-established criteria, which normally include the following as established in the package Bid Evaluation Plan – Commercial (including exceptions to Agreement Articles), Technical, Health & Safety, Environmental, Quality, Risk, Benefits. Bids are analyzed using the above criteria to establish conformity to the RFP requirements and to identify and evaluate exceptions, rank the bids received, which may include developing a short list for further evaluation.

So in other words, the criteria should be established prior to completing the bid evaluation. And that changing the evaluation criteria after the bids was – is not in accordance with Nalcor's policy, at least this policy.

MR. LEARMONTH: Yeah.

MR. SHAFFER: One of the things that we asked Mark Turpin about – about this is – we asked him: Is it – in terms of best practice, would the process normally change after opening? And he said: It shouldn't.

MR. LEARMONTH: Yeah.

Now did you have sufficient time or did you go back to Nalcor and ask for further explanation given the information you received from Mark Turpin?

MR. SHAFFER: I did not. There wasn't time. I mean, in reality, it took two months to schedule this interview.

MR. LEARMONTH: With Mark Turpin?

MR. SHAFFER: Yes.

MR. LEARMONTH: Yeah.

MR. SHAFFER: And we didn't get to interview him until December 2. We had to issue the report, which was issued on December 7.

MR. LEARMONTH: So you didn't have time to complete the review of that topic?

MR. SHAFFER: Well, I didn't have a – yeah, we didn't have time to talk to Nalcor about it.

MR. LEARMONTH: Okay.

Is there – are you pursuing that or is, to your knowledge, anyone else pursuing that?

MR. SHAFFER: My understanding is Commission counsel is going to be pursuing that.

MR. LEARMONTH: Yeah, okay.

So you're saying that because of the time limits that were placed on you to file your report, you were unable to go any further with that review?

MR. SHAFFER: That's correct.

MR. LEARMONTH: Okay.

Page 56 of your report, paragraph 6.6 – cost growth to March 16th.

Could you just go over that please?

MR. SHAFFER: Yes.

Basically, there were $91 million of change orders and back charges. And we reviewed the change order log and noted that the change orders and back charges were the result of the following: changes in quantities and issues with the cofferdam; additional labour incurred to address shortage of rock fill; changes in quantities and labour as the contract is reimbursable. And – the rest is redacted really.

MR. LEARMONTH: All right.

And your Observations and Findings on page 57, would you read them into the record, please?

MR. SHAFFER: Yes. That "During our review of CH0009 – Construction of North and South Dams we observed and found the following which contributed to the differences between the estimated costs of the Muskrat Falls Project at the time of sanction and the costs incurred by Nalcor during project execution:

"Scope changes and budget transfers from other work packages" – including in blank – "million in additional costs.

"Higher labour rates and hours required by the contractor in their bid than what was estimated resulting in" – blank – "million of additional costs.

"Change orders and back charges of $91 million were primarily associated with reimbursements for quantity changes and issues with the cofferdam as well as" – blank – "million of unallocated budget dollars, resulting in" – blank – "million of additional costs."

And, "We have noted that the bid evaluation criteria for CH0009 were revised following the bid opening for this work package. Based on our review of Nalcor's policies we have noted that bid evaluation plans should be established prior to commencing the bid evaluation. Changing the evaluation criteria after the bids had been opened is not in accordance with Nalcor's policy."

MR. LEARMONTH: Okay.

Mr. Shaffer, do you acknowledge that there may be further evidence that could possibly shed more light on this matter?

MR. SHAFFER: Oh, absolutely.

MR. LEARMONTH: Yup. Okay. But you didn't have time to pursue it any further because you had to file your report.

MR. SHAFFER: We – yeah, we had to issue the report.

MR. LEARMONTH: All right, thank you.

THE COMMISSIONER: Can I just jump in here for a moment.

So, I don't want to breach any of the redactions or whatever but – so there were three bids on this particular contract, correct?

MR. SHAFFER: I know of two.

THE COMMISSIONER: Okay. So can you tell –?

MR. SHAFFER: I'm sorry, there were three approved bidders. There were three approved bidders, I'm sorry.

THE COMMISSIONER: Right. So were there actually three bids?

MR. SHAFFER: I would have to check.

THE COMMISSIONER: Okay. And are we able to determine whether or not the bid of Barnard-Pennecon was more or less than the other bids?

MR. SHAFFER: I would have to double-check that.

THE COMMISSIONER: That's something I would like to know.

MR. SHAFFER: Okay.

THE COMMISSIONER: Is that something we are able to – I don't want to stray beyond what has been agreed between the parties because this is an on-going contract, but –

MS. O'BRIEN: Thank you, Commissioner.

We will be presenting further evidence on this package as the hearings proceed.

THE COMMISSIONER: All right, thank you.

MR. LEARMONTH: Is that satisfactory?

THE COMMISSIONER: Yes, that's fine.

MR. LEARMONTH: Yeah. Yeah, I think Mr. Shaffer referred to the fact that he understood the Commission is doing more work on this, so we certainly will be.

Mr. Shaffer, page 58, CH0032, that's the supply and installation of the powerhouse hydro-mechanical equipment. That was another work package that you reviewed and analysed.

MR. SHAFFER: Yes, it was.

MR. LEARMONTH: Okay, please take us through your work on that contract.

MR. SHAFFER: Okay.

Well, we – it's all redacted on page 58 here, but basically we looked at this work package, at the financial forecast as of March of 2018 and compared it to the base estimate and escalation and we accounted for transfers from other work packages to calculate the overrun. And the base estimate was $102 million, the contract award amount was $205 million. And, basically, the overrun was three categories: the contract being greater than the revised estimate, the approved change orders of $91 million and an unallocated budget amount of some number, which is blank, to come up with – to calculate the overrun.

MR. LEARMONTH: Yeah. So that's pretty well all you can say, given the redactions, correct?

MR. SHAFFER: Yes.

MR. LEARMONTH: All right.

MR. SHAFFER: The – look at the RFP and bidding process on the following page, page 59, it said: On December 2, 2012 RFPs were issued to six approved bidders. And after the bids were received, they were evaluated using a series of pre-set criteria, the package budget was increased by some millions of dollars for scope changes and transfers. Some number, which is redacted. And then finally on December 18, 2013, the contract was executed with ANDRITZ Hydro at a value of $205 million.

MR. LEARMONTH: Okay.

MR. SHAFFER: And the variance between ANDRITZ Hydro's $205 million and at least the base estimate plus escalation and transfers from the other work packages, the variance was due to the contract, due to air travel, a labour rate difference and there was a reduction for cost savings where the ANDRITZ Hydro's bid came in less for fabrication.

MR. LEARMONTH: Okay, and that's your – you're referring to that in the contract portion at the bottom?

MR. SHAFFER: Yes, I'm sorry, yes.

MR. LEARMONTH: Yeah, that's at (inaudible).

MR. SHAFFER: Items 12 through – lines 12 through 16.

MR. LEARMONTH: Okay. So just go over that again, the variance – just describe the variance again?

MR. SHAFFER: Sure. The variance between the contract and basically the revised budget – that's my term – is due to air travel being higher in the ANDRITZ contract, the labour right difference being higher and a reduction due to cost savings for fabrication. In other words, the fabrication aspect of it was lower than the estimate.

MR. LEARMONTH: Okay.

Now, on page 60 you discuss the cost overruns from December – incurred from December 2013 to March 2018.

MR. SHAFFER: Yes, there were change orders including a settlement agreement that was entered into. We reviewed two change orders, which made up $78 million of the $91 million of change orders. The first change order was for $20 million, which was for the addition of secondary concrete work allowable in the contract. And then there was another change order for $58 million, which was settlement of delay claims by the contractors as their delivery schedules delayed as a result of Astaldi delays.

MR. LEARMONTH: Yeah, so this was because Astaldi was not up – not on schedule, it caused slippage in the schedule of ANDRITZ, is that correct?

MR. SHAFFER: Yes, it's kindly known as knock-on effects.

MR. LEARMONTH: Yeah.

Just explain how that works. If you had one contractor, you know, a large contractor – Astaldi – is behind on schedule, what potential impact does Astaldi's delay in their work have on other contracts?

MR. SHAFFER: Well, the sequence of work is going to be backed up. And I mean – and really, simple terms, if there's a critical path that's set out, things have to get done before another step can be taken. If that first step is delayed, then that second step is going to be delayed and everything down the line is going to be delayed.

MR. LEARMONTH: Yeah. So it's a cascading effect?

MR. SHAFFER: Yes.

MR. LEARMONTH: Yeah, okay. And was there evidence of that in the Muskrat Falls Project that the delayed – showing that the delays of – caused by Astaldi, you know, had an effect on more than one other contract?

MR. SHAFFER: It's generally known. Specifically, I can't think of a thing off of the top of my head, but in just talking to the project management team, it was known.

MR. LEARMONTH: All right.

Now, your Observations and Findings on lines 7 to 18 of page 60. Can you read that into the record, please?

MR. SHAFFER: Sure.

"During our review of CH0032 – Supply and Install Powerhouse Hydro-Mechanical Equipment we observed and found the following which contributed to the differences between the estimated costs of the Muskrat Falls Project at the time of sanction and the costs incurred by Nalcor during project execution:

"Scope changes and budget transfers from other work packages resulting in" – blank – "million in additional cost;

"The contract award in excess of the revised estimate, resulting in" – blank – "million of additional cost;

"Change orders such as the addition of secondary concrete work and" – a delay claim – "due to the effect of Astaldi delays resulting in $91 million of additional costs" and then "Unallocated budget of" – blank – "million."

MR. LEARMONTH: All right.

Page 61 of your report, you provide your analysis of contract CH0031, supply and installation of the mechanical and electrical auxiliaries.

MR. SHAFFER: Yes.

MR. LEARMONTH: Could you take us through that review, please?

MR. SHAFFER: Sure. We picked this one because of the size of the overrun, which was in excess of 100 million, and we looked further into it. And based on the redactions, all I could really testify to is that the base estimate was $92 million; the contract award amount was $193 million.

MR. LEARMONTH: Okay.

Just describe the – what this contract was for, what type of work.

MR. SHAFFER: "Supply and Install Mechanical and Electrical Auxiliaries is a package for design, supply, installation, registration and completions of mechanical piping systems, heating ventilation and cooling (HVAC) systems, auxiliary electrical systems, assembly and installation of major electrical equipment."

MR. LEARMONTH: So the estimate was only half of what the contract amount was awarded?

MR. SHAFFER: Well, yes, but again, what's redacted here is escalation and transfers from other work packages, so –

MR. LEARMONTH: All right. So it's not –

MR. SHAFFER: – it's hard to testify –

MR. LEARMONTH: Yeah, okay.

MR. SHAFFER: – what the true overruns –

MR. LEARMONTH: Well, we'll have to leave that –

MR. SHAFFER: Yeah.

MR. LEARMONTH: – 'cause of the redactions.

Then on page 62, perhaps you can take us through that?

MR. SHAFFER: Sure.

The "RFP was issued on June 10, 2014" – and I'm on line 5 – "to seven pre-approved bidders with bids received January 2015." The bids were evaluated using the pre-set criteria. And "In June 2016 the work package budget was increased by" – X millions of dollars – "to a new value of" – X millions of dollars. And "The budget increase was due to scope changes and transfers from other work packages," which is summarized in the table.

And I can tell you there was a transfer from – electrical and fire detection scope from CH0031 to 0032. There was transfer of scope from 0031 to SM0709, electrical-mechanical embedment scope from 0031 to 0007 and transfers in to 0031 from – for HV cable drops.

MR. LEARMONTH: Yeah.

MR. SHAFFER: So there's money going in and money going out.

MR. LEARMONTH: Yeah.

MR. SHAFFER: And it netted out to a net increase.

MR. LEARMONTH: Yeah.

MR. SHAFFER: (Inaudible) –

MR. LEARMONTH: Can you explain, generally, why there are scope changes and transfers from other work packages in the Muskrat Falls Project?

MR. SHAFFER: Maybe the – you know, I would think that the project management team feels that this contractor might be in a better position to do the work, and since they've already signed up, they included it in the – probably in the scope of work to give to the contractor. The contractor does their bid, so the bid includes that scope of work.

MR. LEARMONTH: Yeah.

MR. SHAFFER: So you have to transfer the budget dollars with it.

MR. LEARMONTH: Yeah. And is that a usual practice in a construction project such as this?

MR. SHAFFER: I've seen that happen. Yeah. I've seen it happen.

MR. LEARMONTH: Yeah. So you're not critical of that at all?

MR. SHAFFER: No. Not at all.

MR. LEARMONTH: Okay.

THE COMMISSIONER: So let me just get my head around this transfers business because this is – this has been mentioned a few times, and I tried to ask this question yesterday; I'm not sure I got the answer to the question. So if you have a transfer, I assume what happens is, is that money goes from one area or one contract to another contract, which means that the area where the money came from actually reduces that contract amount?

MR. SHAFFER: That budget amount. Yes.

THE COMMISSIONER: That budget amount. So the fact that there is a transfer does not necessarily explain how – if we were to add up all of these contracts together – how it is that – it doesn't explain the difference in the cost from the base estimate to the final cost of the project. 'Cause you're only just shuffling –

MR. SHAFFER: Well, in total, that's right. I mean, the total – obviously, the total overruns was $3.9 million. But in looking at the various work packages, we saw that there were transfers, so the overrun for that particular work package had to be adjusted for that transfer. Otherwise it would have overstated the overrun for that package.

THE COMMISSIONER: Right. And I understand that. So if there is a – say a, I don't know, a $3-billion overrun, it's not caused by the transfers, because what's happening is, is that – or at least this is my understanding – money is just going from one contract to another. It's not increasing the total expected cost of the project. You're just shuffling work around.

MR. SHAFFER: Correct.

THE COMMISSIONER: Okay.

MR. SHAFFER: Correct. That overrun of 3.9, where we're at today, is the same. It's the same dollars we're talking about. It has – the transfers do not impact that total.

THE COMMISSIONER: Right. Okay.

MR. LEARMONTH: And that's a common practice, is it? In construction (inaudible) –?

MR. SHAFFER: I've seen it. Sure.

MR. LEARMONTH: Yeah. Okay

So on page 62, can you take us – do you have anything further to say about that?

MR. SHAFFER: No.

MR. LEARMONTH: No. Okay.

Page 63, Cost Growth. This is from July 2017 to March 2018. So there was a further – I know it's redacted, but there's a further – increases due to remaining – "This is due to the remaining unallocated budget." What do you mean by that?

MR. SHAFFER: Well, let's digress a second, Mr. Learmonth. On page – the prior page, page 62, "The contract was executed" – and I'm on line 11 – "on June 16, 2017 with Cahill-Ganotec Joint Venture for a value of $193 million," which was – and that amount was less than the package estimate, so that on this particular package, it actually came in less than the estimate. And – so I wanted to point that out, too.

And then there was cost growth, and now I'm on the next page, 63. There was cost growth from July 17 to March of 2018. The package grew by X millions of dollars, and its remaining – there was more money that was allocated to this budget through the AFE process, and it just hasn't been committed yet.

MR. LEARMONTH: Okay. Do you know how much that amount is? How much that is?

MR. SHAFFER: No, it's redacted.

MR. LEARMONTH: Yes, of course, it is, sorry. Now, your observations and findings on this contract are stated on – in paragraph 8.7, lines 4 to 13 of page 63. Could you read them into the record please?

MR. SHAFFER: Yes. "During our review of CH0031 – Supply and Install Mechanical and Electrical Auxiliaries we observed and found the following which contributed to the differences between the estimated cost of the Muskrat Falls Project at the time of sanction and the costs incurred by Nalcor during project execution:

"Scope changes and budget transfers from other work packages resulting in" – X – "million in additional cost;

"Unallocated budget of" – X – "million;

"The overrun is partially offset by cost savings of" – X – "million arising from the contract coming in below the estimate."

MR. LEARMONTH: Okay. The next topic that you deal with in your report, beginning at page 64 is the Retaining and Subsequently Dealing with Contractors and Suppliers.

MR. SHAFFER: Yes.

MR. LEARMONTH: Could you just give us a broad overview of this topic before we go through the – your findings on it?

MR. SHAFFER: Sure.

There were – Nalcor has many policies. We reviewed the policies that encompassed how the project management team would select and retain contractors and how those relationships are managed and monitored after the contractor was selected. And so we – that was our judgment of which ones we wanted to review, and so we reviewed these policies. In addition to that, we also reviewed the Internal Audit review of each of those policies and noted what Internal Audit said about each of the policies that we were looking at.

MR. LEARMONTH: So this was a review of the policies and procedures that were followed by Nalcor –

MR. SHAFFER: Well that –

MR. LEARMONTH: – for the Muskrat Falls Project?

MR. SHAFFER: That were the policies that were written that were supposed to have been followed, and then we looked at what Internal Audit said about it in their review of it, and noted in the report Internal Audit's findings.

MR. LEARMONTH: All right.

Well, let's go to the first item, which is on page 65, the Bidder Selection, Evaluation and Award Recommendation.

MR. SHAFFER: Yes.

MR. LEARMONTH: Please describe all of the work you did on that item.

MR. SHAFFER: Yeah.

We reviewed the various policies, and they're all footnoted at the bottom of this page. And I guess instead of reading all of this, I guess basically it's all about the invitation for bidder selections, the receipt and bid opening and then it's bid evaluation and award recommendation. And that's what all this encompasses here, it's just our observation on what the policies said under each.

I think the main point here is on the following page, and it's really in – on line 4, Internal Audit also conducted a review of the process in April 2013, and the results of their audit concluded –

MR. LEARMONTH: You're on page 66 now, right?

MR. SHAFFER: I am, I'm on – I'm sorry, I'm on page 66, starting at line 4.

MR. LEARMONTH: Right.

MR. SHAFFER: "Nalcor Internal Audit conducted a review of the Contract Award Process in April 2013. The objectives of the audit were to assess the policies and procedures governing the decision for contract award to ensure it is fair and reasonable, and to verify compliance with stated policies and procedures. The results of the audit concluded that the policies and procedures in place provided a reasonable approach for a fair and consistent assessment of potential applicants. Internal Audit also concluded the procedures were followed, a consistent application of the evaluation criteria was used, and documentation existed detailing the required levels of approval."

MR. LEARMONTH: Yeah.

MR. SHAFFER: Okay.

MR. LEARMONTH: So that was a positive finding on …?

MR. SHAFFER: I mean it's – yeah, so that means it – they didn't find anything that gave – these are my – this is my words – that gave Internal Audit heartburn over the situation –

MR. LEARMONTH: All right.

MR. SHAFFER: – that Nalcor was following the policies.

MR. LEARMONTH: Okay.

Next you deal with the Post Award Contract Administration.

MR. SHAFFER: Yes.

And we reviewed the policy of procedure for post-award contract administration and our – during our review we noted on the report what the procedure was, and then let's turn to the following page on 67 and I'll note what Internal Audit said, starting at line 11:

"Nalcor Internal Audit conducted a review of the Contract Administration process in 2014. The objectives of the audit were to confirm contract administration had an adequate control environment, to verify procedures aligned with best practices consistent with the Project Management Body of Knowledge ('PMBOK'), Chapter 12 Project Procurement Management/Contract Administration and the

Institute of Internal Auditors Construction Audit Guide, and to review legal templates for completeness and ensure legal oversight and approval during their creation. Internal Audit concluded that the Supply Chain is working within an appropriate control environment. Internal Audit also concluded the post contract award activities and contract close activities are consistent with best practices."

MR. LEARMONTH: All right. Okay.

Next you deal with Procurement in line – starting on line 21 of page 67.

MR. SHAFFER: Yes.

And for this we looked at various policies, we looked at the materials management plan, the procedure for site purchases, the material receiving, the material request, issue and return policies, and we noted what we – what the policies indicated. And then when you go to the following page, on page 68, starting at line 3 – actually line 4:

"Nalcor Internal Audit conducted a Site Purchasing Review in September 2017. The objectives of the audit were to review, discuss, and compliance test site purchasing, receiving, and disbursement of site supplies and tools, including a safety walk around of the maintenance facility. Internal Audit concluded that generally the Site Purchasing Procedure is being followed, as demonstrated through compliance testing, it does however require an update, which the LCP Supply Chain Manager was already in the process of doing."

MR. LEARMONTH: All right.

The next review, as indicated on page 68, line 10, was Invoice Attest and Accounts Payable.

MR. SHAFFER: Yes.

And for that we looked at the accounts payable procedures, and the payment certification procedure and electronic data exchange procedure. And we noted on pages 68 and 69 what those procedures, at a high level said –

MR. LEARMONTH: Okay, just tell us what they are, please.

MR. SHAFFER: Well, that basically that all contractor invoices were required to go through a test and approval process before payment, and it was confirmed that the invoices were compliant with the contract and includes the supporting documentation. It was free of errors, compliant with the tax regulations, approved in accordance with the financial authority procedure and to the appropriate code of accounts. At a high level, that's what it's supposed to be doing.

MR. LEARMONTH: Okay.

Just take us through lines 18 to 27 on page 68.

MR. SHAFFER: Sure.

"Contractors are required to submit invoices in paper format to the Project Office, where they are logged into the Invoice Tracking Log. A Cost Analyst is assigned and starts the attest process by completing Financial Verification. The Financial Verification process includes reviewing the invoice for required information and verifying mathematical accuracy, correct treatment of taxes has been applied, accuracy of holdback amounts, agreement to supporting documentation, and compliance with contract and applicable policies. If the invoice has significant errors or disputed amounts it is rejected and the contractor is notified of the rejection and reasoning in a letter. Once Financial Verification is completed the Cost Analyst enters the invoice into the integrated project management software programs; PM+ (construction costs) or Prism (administrative and staff costs) as appropriate."

MR. LEARMONTH: Okay.

So the financial verification process based on your experience was that an acceptable procedure?

MR. SHAFFER: Oh yes.

MR. LEARMONTH: Yeah.

MR. SHAFFER: Yes, it's very good.

MR. LEARMONTH: Very good.

MR. SHAFFER: Internal Audit – I'm now on page 69.

MR. LEARMONTH: Oh.

MR. SHAFFER: Internal Audit reviewed this also and I'm starting at line 21 on 69 and it indicated that:

"Internal Audit conducted a review of the invoice attest and payable process in September 2015. The objectives of the audit were: 1) review the control environment, risk assessment process, communications and monitoring activities, 2) determine if adequate internal controls exist, 3) test compliance of the process with attested invoices. Internal Audit concluded that internal controls for the Accounts Payable function align with the COSO Internal Control Framework principles relating to control environment, risk assessment, and monitoring processes. Internal Audit also concluded that internal controls included in the invoice attest process and the data exchange process were effective in mitigating the risk of payment for unauthorized costs. Internal Audit noted three medium to low risk issues overall that did not impact the project team's relationship in dealing with suppliers.

"Additionally, Internal Audit conducted a review of the LCP payment certificate review and compliance process in 2015. The audit objectives were to review and assess the adequacy of the controls in place for the Payment Certificate Approval Process and to test compliance to these procedures with invoices that had previously been approved for payment. Internal Audit concluded the controls in place adequately ensured that billings for goods/services were received, inspected, accepted and that pricing and terms are correct. Internal Audit also concluded that the approvals of the payment certificates were generally in compliance with the Payment Certificate process."

MR. LEARMONTH: Okay, now, before we go to the observations I wanted to turn back to a section which I didn't ask you to comment on – that's page 65, paragraph 9.3. If you could take us through that, please.

MR. SHAFFER: Bidder Selection –

MR. LEARMONTH: Yes.

MR. SHAFFER: – Evaluation and Award Recommendation?

MR. LEARMONTH: Yes, just –

MR. SHAFFER: Sure.

MR. LEARMONTH: – go through that.

MR. SHAFFER: "The bidding process began with the development of a contracting strategy by the Contract Administrator ('CA') on any packages greater than $5 million in estimated value, which includes key dates, considerations, procurement method, agreement type, compensation basis and commercial strategy. Once completed, the CA was to: 1) prepare bidder selection questionnaires and evaluation plans, 2) once approved, post those plans on the Lower Churchill Project website and distribute them to any targeted applicants. Once applications were received by Nalcor, they were distributed to the evaluation team for scoring. Applicants were scored on engineering, commercial/credit worthiness, quality assurance, health & safety, environmental and risk management. The result was to identify three or more approved applicants to submit proposals/bids. A bid may be single sourced by preparation of the Single Source Justification form, which must be approved by someone one level higher than the required authority level for the acquisition of the goods or services requested."

Should I continue?

MR. LEARMONTH: Yes, please.

MR. SHAFFER: "Bids received from the selected applicants were logged into the Bid Received Log by the CA and placed sealed into a locked storage cabinet until the RFP closing and formal bid opening. For all bid opening sessions, three representatives were required to attend. In addition to the CA / Buyer, these representatives may include, Project Cost Control and/or one member of the LCP procurement department. The bids were to be stamped and the unevaluated prices are logged into the Bid Opening Record. Technical information was evaluated separately from financial information. The technical documents were distributed to the technical evaluation team to be evaluated and financial information was evaluated by the procurement department for commercial evaluation.

"The proposals were to be evaluated against criteria established in the Bid Evaluation Plan. These criteria generally include commercial, technical, health & safety, environmental, quality, risk, and provincial benefits requirements designed to establish conformity across proposals. Throughout the evaluation process, clarification requests were to be issued by the CA or meetings are held as needed to clarify the bidder's proposal. Once evaluations were completed they were compiled in the Bid Evaluation and Recommendation for Award. The CA will compile the information from the evaluation team and, if necessary, schedule a meeting to discuss and agree on the recommendation for award. A Nalcor requisition form is completed and approved based on the estimated contract value before the award of the contract or purchase order."

MR. LEARMONTH: All right, and you've given us – so, that's a fairly detailed process and you approved the procedures that were followed by Nalcor, as stated in those paragraphs?

MR. SHAFFER: Absolutely.

MR. LEARMONTH: Okay.

All right, now we can return to where we left off, and that's page 70. Could you state your observations and finding beginning on line 12 –

MR. SHAFFER: Yes.

MR. LEARMONTH: – of page 70?

MR. SHAFFER: Yes.

"When considering Nalcor's conduct in retaining and subsequently dealing with contractors we reviewed Nalcor's policies and procedures. Our review was focused on considering if Nalcor's supervisory oversight and conduct contributed to project cost increases and project delays. We concluded the following:

"Nalcor had well documented policies and procedures specific to the LCP. These policies and procedures were reviewed and updated periodically. In addition, Nalcor's internal audit group, throughout the construction phase of the LCP, reviewed the policies and procedures with no material deficiencies noted. Therefore, we have concluded that the documented policies and procedures governing Nalcor's conduct in retaining and subsequently dealing with contractors were in accordance with best practice.

"Generally, with the exception of Nalcor's oversight of Astaldi's work (as described in section …)" – this says section 4, it actually should be section 3 of this report – "their conduct in retaining and subsequently dealing with contractors did not contribute to project cost increases and project delays."

MR. LEARMONTH: Okay.

All right, now please turn to page 71, which is your review of contractual and commercial arrangements between Nalcor and the various contractors. What was the purpose in conducting this review?

MR. SHAFFER: Well, the mandate was: "*... whether (ii) the terms of the contractual arrangements between Nalcor and the various contractors retained in relation to the Muskrat Falls Project contributed to delays and cost overruns and whether or not these terms provided sufficient risk transfer from Nalcor to the contractors...*" and "*... whether (vi) the commercial arrangements Nalcor negotiated were reasonable and competently negotiated ...*"

MR. LEARMONTH: Okay. Just tell us what risk transfer means generally?

MR. SHAFFER: It's where the owner attempts to transfer risk of the cost of that scope of work to the contractor, basically.

MR. LEARMONTH: Yeah.

MR. SHAFFER: I mean, for example, a lump-sum agreement, meaning a fixed price – that this contractor is going to do this piece of work at a fixed price.

MR. LEARMONTH: Yeah.

MR. SHAFFER: There's pluses and minuses to that.

MR. LEARMONTH: Yes.

Can you please describe the – generally – the advantages and disadvantages of attempting to transfer risk to a contractor as opposed to the owner retaining the risk and dealing with the risk?

MR. SHAFFER: Any time – I mean it's all subject to arm's-length negotiation, and any time that you attempt to transfer risk to a contractor, there's gonna be a premium to pay for that, I mean basically.

And, for example, you could have a – say you're building a house and that house is gonna cost – a contractor tells you it's going to cost $300,000. And you say back to that contractor, okay, but I don't want it to exceed $300,000. Contractor might say, well, there might be unknowns here that I don't know about. Right? And, as a result, I'm now gonna want $350,000 to cover those unknowns.

That's, I think, an example that helps clarify it.

MR. LEARMONTH: Okay.

So, if there's a – if the risk – and now I'm speaking in very general terms – but if a risk is transferred to a contractor, the contractor will want, perhaps, a premium in their price –

MR. SHAFFER: Oh, absolutely.

MR. LEARMONTH: – to deal with that risk?

MR. SHAFFER: Yeah. Absolutely.

MR. LEARMONTH: Yeah.

And if the owner retains the risk, well, then the owner is in a position to manage the risk, but might – may have a higher cost than was first expected?

MR. SHAFFER: Potentially.

MR. LEARMONTH: Yeah.

MR. SHAFFER: Potentially.

MR. LEARMONTH: Yeah.

So that's an issue that comes up all the time –

MR. SHAFFER: Comes up –

MR. LEARMONTH: – in construction –?

MR. SHAFFER: – all the time. It comes up in my practice too. It comes up all the time.

MR. LEARMONTH: Yeah.

I mean is there any guideline – are there any guidelines that you're aware of that when you do attempt to transfer risk, or whether you keep the risk to yourself, is that a – sort of a – an area where there's been work done or principles established?

MR. SHAFFER: Well, I started out this section by looking at what Merrow said about it. And maybe I'll just – could I just read what his perspective is on it, if that would be okay?

MR. LEARMONTH: All right, okay. Well, let's go in – and that's on page 71, correct?

MR. SHAFFER: Yes.

MR. LEARMONTH: Okay. Just take us through the background. I think you're referring to lines 9 to 26?

MR. SHAFFER: Nine – really 9 to 21, where it talks about Merrow.

MR. LEARMONTH: Yes, okay. Well, take us through that – read that into the record, please.

MR. SHAFFER: Okay. So I was curious what he – what his viewpoint on it, what he said in his book. And what he says is the following: "*'Contracting for the servicers needed to engineer, procure materials, and construct megaprojects is an area of intense disagreement and almost religious-like fervor among project professionals…Every approach to contracting appears to have both ardent adherents and steadfast opponents.'* Mr. Merrow goes on to say: '*We tend to exaggerate the importance of contracting approach to project success or* *failure. No contracting approach guarantees success; most contracting approaches can succeed.'*"

He also goes on to say that "*'Every contracting approach brings with it uncertainty and possibility. Contracting is difficult, and it is situational. Perhaps that is why so many … project and business professionals want to believe they have found the answer. But in reality, the answer probably does not exist. There is, however, one rule that always seems to apply: if sponsors decide to engage in contracting games, by which I mean trying to get the better of contractors, they will always lose. Contractors always have been and always will be better at contracting games than owners. Their lives depend on it.'*"

MR. LEARMONTH: Yeah.

MR. SHAFFER: That's his viewpoint.

MR. LEARMONTH: Yeah.

MR. SHAFFER: So with that, we chose the two largest contracts to take a look at. That was Astaldi and Valard. And in the course of that – I'm now on page 72. In the course of that, we asked our third party experts to look at these contracts also. And we used Miller Thomson, the law firm, and R. W. Block Consulting, the construction-specialist firm. And Miller Thomson, we asked them to contract – we – on both Miller Thomson and R. W. Block, we asked their comments on the original agreements. We didn't ask them to comment on the subsequent agreements because those are dealing with specific issues.

MR. LEARMONTH: Yeah.

MR. SHAFFER: And for Miller Thompson, we asked them to review and provide their view on whether the contractual terms: "contributed to the delays and/or cost overruns; provided sufficient risk transfer from the Owners to the Contractors; reflected a procurement strategy appropriate for the Project, and; were reasonably and competently negotiated." And their conclusions are throughout this analysis in this section.

We asked R. W. Block to review the Astaldi and Valard contracts.

MR. LEARMONTH: Okay. Well, just take a – if you just –

MR. SHAFFER: Sure.

MR. LEARMONTH: Where are you in your report now? So we'll know – be able to follow it.

MR. SHAFFER: Page 72.

MR. LEARMONTH: Seventy-two. Okay. Very good.

MR. SHAFFER: Now I'm at line 16. I just –

MR. LEARMONTH: Okay. I've got it.

MR. SHAFFER: I just read line 4 through 15.

MR. LEARMONTH: Correct. Okay. I was a little bit ahead. Yeah.

MR. SHAFFER: Okay. We also asked R.W. Block to take a look at these contracts, and we asked their review to look at Astaldi in terms of "the structure of the contract; the financial security provisions in the contract" – and – "Nalcor's decision to negotiate a revised contract with Astaldi."

And then with Valard: "the structure of the contract; the financial security provisions in the contract" – and – "Nalcor's claims settlement with Valard."

And again, the conclusions are in the subsequent pages in this section, of both Miller Thomson and R.W. Block.

MR. LEARMONTH: Okay. I'd like to – you to take us through this – the analysis of each of those items starting on page 73, 10.4 the Astaldi – Contract CH0007-001.

MR. SHAFFER: Okay. The Astaldi contract – we felt it was important to share with the Commissioner what the Investment Evaluation team did in terms of the creditworthiness evaluation on Astaldi and Salini, as they were the short bidders for this work package. They were the ones that were selected for further evaluation. And –

MR. LEARMONTH: They were the two lowest bidders?

MR. SHAFFER: Yes.

MR. LEARMONTH: Yes.

MR. SHAFFER: And there was an email – the results of this creditworthiness evaluation was outlined in a couple of emails. One was from Robert – Rob Hull, the general manager of commercial, treasury and risk and the chief risk officer to Derrick Sturge, VP of finance and the CFO on August 23, 2013.

MR. LEARMONTH: Okay. So now we're talking about the assessments done of the creditworthiness and financial standing of Salini and Astaldi, correct?

MR. SHAFFER: Yes.

MR. LEARMONTH: Okay. Just take us through that, please?

MR. SHAFFER: Mr. Hull states to Mr. Sturge: "'*I believe the Salini JV to be an unacceptable*" –

MR. LEARMONTH: This is line 11 on page 73?

MR. SHAFFER: Yes.

MR. LEARMONTH: Okay.

MR. SHAFFER: "*I believe the Salini JV to be an unacceptable counterparty from a credit perspective. Salini has … been rated as BB by Fitch, which is near the bottom end of speculative. Further, FCC* [Salini S.p.A/FCC Construction S.A. – Joint Venture] *has a bankrupt subsidiary with allegations of bankruptcy fraud, and seems to be having their own set of problems in Spain, including substantial losses in 2012*."

And now I'm line 16.

MR. LEARMONTH: Yeah.

MR. SHAFFER: "He goes on to say: '*That leaves Astaldi. While I am not overly enthusiastic about the outlook for Italy…and hence exposure to an Italian firm for such a substantial contract, I understand there are commercial reasons as to why these two players comprise the short-list…the contract terms for Astaldi appear stronger overall versus the Salini JV…I understand the commercial team believes the performance security provided to be the maximum amount we likely could obtain…would like to have seen it higher given the risk and seeing it is below our standard ask of 15%. I also understand Treasury enquired about obtaining security over the batch plant in the event of default…I understand that was rejected and I would like to understand why…on the surface, it would provide more value and also likely to reduce time and cost if they had to be replaced…My conclusion…the Salini JV should not be considered further. Astaldi is better (less risk) but risks above should be communicated to the decision makers.*'"

MR. LEARMONTH: Okay, now just at this point, even though it may be perfectly obvious to everyone, just explain why it is necessary to do a financial analysis of the bidders before making a decision on the bids.

MR. SHAFFER: Well, if you hire a contractor who's potentially is going to be out of business into the project, it's going to impact your project. It's – you're gonna have delays.

MR. LEARMONTH: Yeah.

So that's an important consideration, is it?

MR. SHAFFER: It's a very important consideration.

MR. LEARMONTH: Okay.

Okay, continue on, please. I think you're at line 26 of page 73.

MR. SHAFFER: I am.

"In a subsequent email from September 12, 2013 Mr. Hull states *The proponent*" – and now I believe he's talking about Astaldi – "*is credit worthy based on our established criteria and has posted an acceptable performance security* *package, and we will be recommending acceptance from a creditworthiness perspective. However, in reaching this decision, decision makers should be 'eyes open' to any of the risks noted below in the key findings…overall credit score is 63%...Performance security consists of a $100 million letter of credit…and a $150 million performance bond…LCP has arranged a 10% hold back bond, which minimizes risk of work stoppage due to subcontractor claims…liquidated damages are also provided on a schedule and key personnel. This provides an adequate incentive to the proponent to*" – contemplate [sp. complete] – "*the work in a timely manner…liability is unlimited if the…proponent walks away…the economic outlook for Italy…is not favourable.*"

MR. LEARMONTH: Okay.

MR. SHAFFER: Okay?

MR. LEARMONTH: So that's a qualified statement, I would say.

MR. SHAFFER: Well, you would have to talk to Mr. Hull about that. I mean, the words are in black and white.

MR. LEARMONTH: Right.

MR. SHAFFER: So we did – after that, we looked at the Astaldi contract, and in the following page, page 74, we outlined the commercial terms from the contract. And the contract, it was broken up in various components. First was the target costs of labour of $508 million, and then an additional cost of labour for the cost sharing amount of another $64 million, for a total labour maximum of $572 million.

The labour profit, which is 7 per cent of target labour cost, was $35 million. And then there were other items included in the contract that were lump sum and unit price items of $452 million and there was a travel allowance of $29 million.

MR. LEARMONTH: Okay.

MR. SHAFFER: So the total, starting with the 572 – if you add up the 572, the 35, the 452 and the 29, you had 1,088 billion for this contract, including the LMax.

MR. LEARMONTH: Okay.

Now, you've referred to labour profit of 7 per cent of target labour cost.

Is that – does that fall within a range that one would reasonably expect for a contract like this?

MR. SHAFFER: It –

MR. LEARMONTH: Seven per cent?

MR. SHAFFER: – it struck me a little low. Struck me low.

MR. LEARMONTH: Yeah.

Okay. Then proceed – we're on line 7 of page 74, under the heading: "Target Cost of Labour."

MR. SHAFFER: Yes.

In reviewing of the contract, we saw that the target cost of labour was a contractor's estimate of the reimbursable costs of labour, and this would include the actual wages and benefits that was paid by the contractor, plus the government burdens, for example, the Canadian Pension Plan.

"The reimbursable costs of labour was subject to an 'LMax.' The LMax was defined as the maximum value of the reimbursable costs of labour." So in the other words, in this contract there couldn't be – the reimbursable costs of labour couldn't go above 572 based on the contractual terms.

MR. LEARMONTH: So, that means that the labour costs are reimbursed. So in other words, the owner will pay the cost of labour, but only up to a certain cap.

MR. SHAFFER: Up to $572 million in this –

MR. LEARMONTH: Yeah.

MR. SHAFFER: – case.

MR. LEARMONTH: And after that, it's up to the – if it goes above that, the contractor has to bear the – anything above the LMax. Is –

MR. SHAFFER: Contractor –

MR. LEARMONTH: – that right?

MR. SHAFFER: – would bear that risk.

MR. LEARMONTH: Yes, okay.

MR. SHAFFER: And I state this in the following sentence on line 12: "The contractor was responsible for the reimbursable cost of labour which exceeded the LMAX amount. On the effective date of the contract, the estimated LMAX was $572 million, which" – is – "… the 508 of the target cost of labour plus the additional $64 million"– to bring 'em to the LMax of $572 million.

We asked Miller Thomson, the law firm, to review this provision, and they noted that the – and I'm on line 15 – that "… *the cap on Reimbursable Cost of Labour (the LMAX) is still subject to fluctuation on account of any change orders approved by MFC. Ultimately, any increase to the estimate of the Reimbursable Cost of Labour… had to be approved by MFC pursuant to the change order regime included in the Astaldi Agreement*."

So in other words, Nalcor was the one that – if they were going to pay more than the 572, that they had – or the Reimbursable Cost of Labour, it had to be approved through the change order regime. Nalcor had the approval rights.

MR. LEARMONTH: Okay.

MR. SHAFFER: "Thus Astaldi would bear the risk of any labour costs which exceeded the LMAX that were not approved by MFC pursuant to any change orders." And as we know: "Subsequently, Nalcor agreed to absorb that risk based on the analysis described in the" – next paragraph.

I testified to this yesterday, but –

MR. LEARMONTH: Yeah.

Go over it again, please?

MR. SHAFFER: Yes.

"As previously noted in this report, in" – it says October '16, it was February of '16 it should be – "Nalcor engaged Westney … to assist them with determining whether they should continue with Astaldi. This analysis found that with such a significant cost gap, other factors needed to be considered such as: *Cost to complete over and above Astaldi contract; Astaldi's financial strength, i.e. their ability to absorb losses of such magnitude; The cost of alternative execution approaches given the size of the issue.*

"It also became known that the guarantor, Astaldi S.p.A. (parent company of Astaldi Canada), was experiencing a deteriorating financial position hence diminishing the value of the parental guarantee. This impacted Nalcor's decision on whether or not to enforce the parental guarantee as *Astaldi's lack of liquidity and creditworthiness are likely to lead to outcomes that are very unfavorable*…

"Nalcor" – then – "with the assistance of Westney, determined that negotiating a completion agreement with Astaldi provided an outcome that gave the … *least cost-risk exposure …* and … *provides most certainty and controlled predictive outcome ....*"

MR. LEARMONTH: Okay.

And that advice was followed, was it?

MR. SHAFFER: Yes, it was. Yes.

MR. LEARMONTH: Do you find any fault with the fact that it was followed or do you have any comment on that? Is that within the scope if your expertise?

MR. SHAFFER: When I read the documents, I thought at the time – granted my critique was at a – it took two years. But at the time that they did it, it seemed like a reasonable decision. I mean, I'm not sure what choice Nalcor had at that point.

MR. LEARMONTH: Yeah.

So the option of terminating – if legal grounds exists, would mean that there would have to be a new contractor hired

That new contractor would have significant mobilization costs –

MR. SHAFFER: Yes.

MR. LEARMONTH: – and it would obviously, result in a delay in schedule.

Is that a fair way to put it?

MR. SHAFFER: I think, it'd be delaying – I think it'd be delaying schedule and if Nalcor would be coming to me as a contractor, I would probably have a nice premium built into that for me –

MR. LEARMONTH: Yes.

MR. SHAFFER: – quite honestly.

MR. LEARMONTH: Yeah.

MR. SHAFFER: And based on the Westney analysis, I mean, this was the option that gave them the least-cost exposure and it's a reasonable decision, in my mind.

MR. LEARMONTH: And one further consideration would be that: If you terminate a contract, there's always the potential that the contractor will start proceedings against you saying it was an unlawful termination.

Is that correct?

MR. SHAFFER: Well, it – that there'll certainly be litigation, I mean – I would think.

MR. LEARMONTH: Yeah.

So you find no fault with the fact that Nalcor decided to work with Astaldi rather than terminate Astaldi and bring in a new contractor back in 2016.

MR. SHAFFER: I don't find any fault with that. Again, my critique was – it took two years, at least based on what I've seen, to do that analysis.

MR. LEARMONTH: To do the formal analysis. I think, there was some evidence that it was considered in 2014. You referred to Lance Clarke's –

MR. SHAFFER: I think, yes.

MR. LEARMONTH: All right.

All right.

Now we're on page 75, line 17: "Labour Profit."

Can you just – I asked you a question about that, can you –?

MR. SHAFFER: Yeah.

Included in the contract was a labour profit provision, which is compensation for the profit on reimbursable costs of labour. And labour profit was 7 per cent of the target cost of labour, which was 508 million or approximately $36 million. "Labour profit was to be paid based on the proportion of total concrete installed to the total estimated concrete."

The contract also had fixed lump sum items, which the lump sum payments were to be paid monthly based on the progress achieved against each item from the schedule of values and accepted by the Engineer.

The contract also had fixed unit price items. And those unit price payments were to be paid monthly and were based on company approved quantities installed.

The contract also had a travel allowance.

MR. LEARMONTH: You're on page 76 now.

MR. SHAFFER: Yes, I'm sorry.

Where Nalcor was required to pay the actual travel costs allowances and air transportation costs. And those were the main economic drivers of the contract.

We – contract also indicated performance security and the –the performance security was various things.

There was a parental guarantee from the parent company, Astaldi S.p.A, that was an unlimited guarantee. There was a letter of credit that was linked to the advanced payment of 10 per cent of the contract price to Astaldi and released when Nalcor had received full credit from the contractor. If you do that math that was probably $102 million, which is the contract price, basically, times 10 per cent; that's without the LMax.

There is a letter of credit – second letter of credit of $100 million that was going to be in place until substantial completion certificate has been issued and then it would be reduced to $20 million until final completion certificate has been issued. And then there was a letter of credit number three for $10 million covering the warranty period. And then there was also a performance bond to guarantee the performance of the work that was pre-paid and non-cancellable of $150 million.

MR. LEARMONTH: Okay.

So your review included an assessment of whether this security that Nalcor took was within an acceptable range?

MR. SHAFFER: Well, we reviewed it and – but we also asked one of our experts, R. W. Block, to also comment on it and that's on –

MR. LEARMONTH: And that's on page 77.

MR. SHAFFER: Yeah. That's on the page 77.

MR. LEARMONTH: Okay. Please take us through that.

MR. SHAFFER: Okay. It's on the screen.

They reviewed the article and Mr. Hennessy noted: "*Contracts that require performance bonds, often require bonds in the amount of 100% of the project's value. However, on very large projects (such as this) we have seen lower bonding requirements (such as 50%, or less, of contract value), and other approaches such as Letters of Credit and Parent Guarantees.*" And his conclusion is: "*As such, Nalcor's approach is consistent with approaches we have seen on other large contracts, but as Astaldi S.p.A.'s reported financial deterioration has shown (which will be discussed later), Parent Guarantees are not one-for-one replacements for performance bonds.*"

MR. LEARMONTH: Right, because the value of them depends on the financial status of the – in this case of Astaldi's parent company which deteriorated after the contract was awarded, is that correct?

MR. SHAFFER: It did. But remember, they did a creditworthiness –

MR. LEARMONTH: Yes.

MR. SHAFFER: – evaluation and they felt, at the time, they were creditworthy.

MR. LEARMONTH: Yeah, but there was deterioration after that creditworthiness assessment was done.

MR. SHAFFER: Yes.

MR. LEARMONTH: Yes. Okay.

MR. SHAFFER: There was a Liquidated Damages provision for delays.

MR. LEARMONTH: This is line 7 of page 77.

MR. SHAFFER: Yes.

MR. LEARMONTH: Okay.

MR. SHAFFER: "… for delays at a daily rate that varies based on the missed milestone." And it was limited to 7.5 per cent of the contract value or approximately $77 million.

"Miller Thomson reviewed the liquidated damages article included in the … contract and noted: '*The inclusion of liquidated damages for delay ('Delay LDs') assists in transferring a proportion of the risk of delays from MFC to Astaldi as it provides an incentive for Astaldi to achieve specific milestones by the applicable agreed upon dates*.'"

There's also a – I'm on line 15 now, Limitation of Liability provision: "The agreement contained a limitation of liability provision which limited the Contractor's maximum aggregate liability to 50% of the contract price (approximately $500 million)."

Miller Thomson noted the following: "*The cap being based on 50% of the Contract Price is a negotiated term, and while it could be argued that 100% of the Contract Price would have* *been more appropriate in the circumstances, the existing provision, as conditioned by the various exceptions, does not appear to be unreasonable*."

MR. LEARMONTH: All right.

MR. SHAFFER: And then the contract had a Default and Termination provision.

MR. LEARMONTH: This is line 23.

MR. SHAFFER: Yes.

MR. LEARMONTH: Page 77.

MR. SHAFFER: And there were two default and termination provisions, one was for cause and the other was for convenience.

The one for cause, for default, if the contractor – and I'm on line 26: "*if the Contractor does not properly prosecute the Work or fails in the performance or observance of any of its obligations under this Agreement and such failure has a material adverse effect on the Company or the Work except to the extent that the failure in performance or observance is excused by reason of Force Majeure or is caused by Company or any Person under its control*."

Miller Thomson's comment on this article, the agreement, on line 30 states that: "*… the Astaldi Agreement included the necessary tools that would have allowed MFC to terminate the Agreement due to Astaldi's poor performance. MFC had the ability to terminate the Astaldi Agreement 'for cause' based on Astaldi's poor performance assuming that such poor performance had a 'material adverse effect' on MFC or the Project itself ....*" – I'm on the next page. Assuming that –

MR. LEARMONTH: That's 78, yeah.

MR. SHAFFER: Yes.

"*Assuming that Astaldi's poor performance: (a) caused a material adverse effect on MFC or the Project, (b) such poor performance is not excused by reason of Force Majeure, and (c) such poor performance was not caused by MFC or any Person under MFC's control, then, the Astaldi Agreement allows MFC to begin the process to terminate the Astaldi Agreement 'for cause'*."

We then looked at section 24.11(b) of the agreement and it "indicated that notwithstanding any other provision in the agreement: '*… at any time during the Term, Company may, in its sole and absolute discretion and for any reason, including convenience of Company and without any fault or default on the part of the Contractor, terminate this Agreement effective immediately* ….'" So basically for – you could terminate for convenience.

"Miller Thompson reviewed this article and noted: '*Therefore, in the event Astaldi's poor performance did not rise to the level of a "material adverse effect" on MFC or the Project or otherwise did not meet the minimum requirements to allow MFC to terminate the Astaldi Agreement 'for cause' … MFC had the ability to terminate the Astaldi Agreement at any time … provided MFC paid the applicable termination fee to Astaldi.*'"

And then the agreement had a termination fee that would include: "unpaid labour profit owed to Astaldi; work that has been satisfactorily performance to date of termination; expenses of" – Astaldi – "that are directly related to the termination; cost of plant and materials ordered for the work which have been delivered to the Contractor; cost of removal of any temporary works and of" – Astaldi's – "items from the Site; cost of repatriation of" – Astaldi's – "staff and labour employed wholly in connection with the work at the date of termination." So if they were terminated for convenience –

MR. LEARMONTH: Those items could add up to a pretty significant sum.

MR. SHAFFER: Could be.

MR. LEARMONTH: Yeah.

MR. SHAFFER: Could be.

MR. LEARMONTH: Yeah.

MR. SHAFFER: The Construction Schedule, section 8.5 of the agreement stated: "*To the extent a Change impacts a Milestone Date or an*

Interface Date such date or dates shall be extended to reflect additional time required for the Work occasioned by the Change. Such extension of time shall require a Change Order and be treated in accordance with the provision of Article 14." Meaning, you just can't extend the schedule without Nalcor approving it, subject to the – part of the change order regime.

I'm now on page 79, I believe.

MR. LEARMONTH: Yes, you are. Top of page 79.

MR. SHAFFER: "Miller Thompson commented: '*As demonstrated by the examples of MFC's Approval Rights above, Astaldi was largely unable to increase the Project cost/price or extend the construction schedules without the prior approval of MFC in the form of a change order or similar approval. MFC's Approval Rights included in the Astaldi Agreement provided an effective risk transfer 'tool' as they limited the ability of Astaldi to unilaterally increase the cost of the Project or extend the construction schedule. Therefore, it is our view that the Astaldi Agreement largely included the necessary and typical tools found in an agreement of this type to allow MFC to limit cost overruns and delays by withholding any requested approvals and seeking alternative solutions at that time*.'"

Okay?

MR. LEARMONTH: All right.

We're at 11 o'clock. Would this be an appropriate time to take a break before I start another subject?

THE COMMISSIONER: Yes, okay. (Inaudible.)

CLERK: All rise.

Recess

MR. LEARMONTH: Before we continue on – I think we left off at page 79 – there's just a couple of points that I wanted to go over with you. The first is on page 70 of your report, Mr. Shaffer, line 23 to 25.

I'll quote what you said: "Generally, with the exception of Nalcor's oversight of Astaldi's work (as described in section 4 of this report), their conduct in retaining and subsequently dealing with contractors did not contribute to project cost increases and … delays."

Now, are you saying that their procedures were correct?

MR. SHAFFER: I'm saying that their documented policies and procedures were in accordance with best practice.

MR. LEARMONTH: Okay, but did you do a review to see whether those best-practice procedures had been followed in all cases?

MR. SHAFFER: No.

MR. LEARMONTH: You didn't?

MR. SHAFFER: No, and we know from the – my testimony regarding the Mark Turpin situation that it appears, in that case, it potentially wasn't followed.

MR. LEARMONTH: Okay, so you didn't do a review of the – of all the contracts to determine whether the best-practice procedure had been followed. Is that correct?

MR. SHAFFER: Correct.

MR. LEARMONTH: Okay.

One other point of clarification that I want you to address – page 36 of your report.

You say in the report that the "… production level was attained nine times out of 57 months since commencement of the … Additionally, the last time Astaldi attained the 13,300 cubic meter threshold was over a year ago in August …."

Now, can you just go over this and with – and explain the graph on page 37 again, because I think you were talking about monthly averages in each year?

MR. SHAFFER: Yes.

MR. LEARMONTH: Is that correct? Just go over that again because the graph doesn't really

– without some explanation I don't think the graph, you know, provides clarification on that point.

MR. SHAFFER: Okay.

The easy way is just to give you the numbers. In 2015, the metres that – cubic metres of concrete that was placed in that year was 120,000 cubic metres. If you take 120,000 divided by 12 it gives you a 10,000 monthly average of cubic metres poured, which is what the graph depicts.

MR. LEARMONTH: Okay.

So it's the monthly average in each year – that's what you have to understand to look at the graph.

MR. SHAFFER: Correct.

MR. LEARMONTH: In looking at the graph.

MR. SHAFFER: Correct.

MR. LEARMONTH: Okay.

So we'll now return to page 79 of the report. And on line 10, paragraph 10.5, you're dealing with the "Valard – Contract CT0327-001."

MR. SHAFFER: Okay.

MR. LEARMONTH: You first talk about the – you note that the contract with Valard contributed to $788 million – 20 per cent of the project overruns as of March 2018. And it – that it was for that reason, the substantial cost overrun, that you conducted this review.

Is that correct?

MR. SHAFFER: Partly, and also it was one of the larger contracts. It was –

MR. LEARMONTH: Okay.

MR. SHAFFER: – it was one – Astaldi and Valard were the two largest.

MR. LEARMONTH: All right.

Okay, commercial terms first – line 14, page 79.

MR. SHAFFER: The agreement – exhibit 2 of that agreement – outlined the compensation with Valard, and it was structured as a lump-sum and unit-price contract and it totalled $809 million. And you can see the breakdown by segments – what made up the $809 million.

The fixed lump sum portion – I'm now on line 20 – the fixed lump sum – payment for the work that was to be "… completed on a lump sum basis is based on fixed prices and the aggregate total shall form the fixed lump sum price of this agreement. This includes all elements necessary to complete the work."

And that: "Measurement of the items paid on a lump sum basis shall be completed on a monthly basis subdivided into … payment milestones. Progress against the payment milestones accepted by the engineer" will "form the basis of the invoices."

Contract also had unit-price items. I'm now on the following page.

MR. LEARMONTH: This page 80? Yeah.

MR. SHAFFER: Yes.

And of the "Unit Price Items" includes all the "… elements necessary to achieve completion of each item. Payments on unit price items are made monthly and are based on company approved quantities installed. Estimated quantities of unit price items are not guaranteed and payments are only made on quantities installed."

And then there was a reimbursable work – time and material would be paid, but Valard "… had to obtain prior approval from Nalcor or the Engineer before commencing any reimbursable work.

"Cost reimbursable work" is defined "… as follows: … the Contractor's Labour Rates multiplied by Accepted hours of Work … Contractor's Equipment Rates multiplied by Accepted hours of use … Pre-Accepted material expenses, travel and mileage expenses and third party expenses."

Again, they had achieved Nalcor's approval for this.

The contract also outlined performance security. And there was a parental guarantee that was unlimited – a guarantee from Quanta Services, the parent company of Valard, and it was basically for the full performance payment and observance by the contractor is what was being guaranteed.

Additionally, in security – I'm on the next page, 81 – there was a letter of credit equal to 8 per cent of the total contract price until a fixed completion certificate has been issued, and that would be approximately $65 million which is merely the $809 million times the 8 per cent. And that would be equal to 4 per cent of the total contract price during the warranty period, or $32 million.

MR. LEARMONTH: Okay.

Now just – this contract with three different components: the fixed lump sum, unit-price items and reimburseable work, time and materials – is that a common way to structure a contract in these circumstances?

MR. SHAFFER: I've seen it before. Sure.

MR. LEARMONTH: Yeah.

MR. SHAFFER: Yeah.

MR. LEARMONTH: Okay.

MR. SHAFFER: The performance bond – as far as secured, there was no performance bond in this particular agreement.

We asked R. W. Block to take a look at this, and here's what Derek Hennessey had to say about it: "*'Contracts that require performance bonds, often require bonds in the amount of 100% of the project's value. However, on very large projects (such as this) we have seen lower bonding requirements (such as 50% of contract value – which was the amount identified in the RFP), and other approaches such as Letters of Credit and Parent Guarantees. As such, Nalcor's approach is consistent with approaches we have seen on other large contracts.'*"

We asked him to clarify this comment. In a subsequent memo he indicated that: "*'In our experience we do not typically see requirements for both Parent Guarantees and Performance Bonds for 50% or more of the contract value on large contracts. We generally see one or the other. Including the Parent Guarantee in the contract is why we stated Nalcor's approach was consistent with approaches we have seen on other large contracts.'*"

MR. LEARMONTH: All right.

MR. SHAFFER: The next section was "Liquidated Damages" provision. And this agreement provided "… liquidated damages for delays at a daily rate that varies based on the missed milestone." And "… liquidated damages is limited to 10% of the contract value (approximately $81 million)."

Miller Thomson, in their memo to us, indicated that: "*'The inclusion of Delay LDs'*" – which is liquidated damages – "*'assists in transferring a proportion of the risk from LIL LP to Valard, as it provides an incentive for Valard to achieve specific milestones by the applicable agreed upon dates. Assuming the quantum of the Delay LDs was appropriate, it also streamlined the mechanism for LIL LP to collect its reasonable estimated costs as a result of such delay. However, Delay LDs are limited to 10% of the Contract Price by Section 26.1 of the Valard Agreement.*"

There's a next section and I'm on page 82. There's a limitation of liability provision in article 21.15 of the contract. We asked Miller Thomson to review it, and they indicated: "… *it is not unusual for a limitation of liability provision to be included in agreements of this type. This provision caps the liability of the Valard to LIL LP at 100% of the Contract Price, but this limitation does not apply to any indemnification for claims for personal injury or property damage suffered by third parties, Valard's wilful breach, taxes, fines or penalties imposed for which Valard is liable, claims for infringement of intellectual property, claims for environmental damage or loss, and any other indemnity claims arising from third party claims. While the level of the cap is a negotiated term, a cap of 100% of the applicable Contract Price is generally reasonable, depending on the potential liability that could be caused by Valard* *while completing its obligations under the Valard Agreement.*"

The default and termination provision, article 24 – and: "Article 24.11 dictates that Nalcor had the ability to terminate the agreement for convenience."

"Section 8.3 of the agreement" – when it talks about the construction schedule –

MR. LEARMONTH: Just before we go – was that on the same terms and conditions as the earlier termination for convenience cause that you reviewed?

MR. SHAFFER: I – you mean for Astaldi?

MR. LEARMONTH: Yes.

MR. SHAFFER: I don't recall a termination fee in this particular agreement.

MR. LEARMONTH: All right.

MR. SHAFFER: The construction schedule: "Section 8.3 of the agreement indicated:" – that – "*The Construction Schedule shall be updated as necessary, and in any event shall be updated by Contractor at least monthly and delivered to Engineer not more than seven (7) days after the end of the preceding month. Update to the Construction Schedule shall comply with the requirements of this Article 8.*

"Article 1 interpretation of the agreement defines 'Change' as including a variation to the schedule for the completion of a Milestone. We reviewed Article 14" – which is the change order provision – "of the Contract titled 'Changes in the Work.'" And it indicates – "Article 14.2 indicates *the contractor shall not perform and shall not be entitled to any compensation for a change without a change order issued by the company … to the contractor for the change.*"

Regarding the subsurface conditions, we asked Miller Thomson to review that part of – well, they actually reviewed the whole agreement, but they commented on this.

MR. LEARMONTH: And this subsurface, that brings us back to the point that Nalcor was unable – said –say, it was unable to perform testing by boreholes of the foundation areas for the transmission line.

Is that correct?

MR. SHAFFER: As I understand, it was limited – very limited –

MR. LEARMONTH: Yes.

MR. SHAFFER: – geotechnical testing.

MR. LEARMONTH: Yeah.

So I mean, a contractor in those circumstances would be unlikely or perhaps even unwise to give a lump sum price or fixed contract price when the geotechnical conditions had not been identified?

MR. SHAFFER: I would think if they did, it's gonna cost all a lot of money.

MR. LEARMONTH: Okay.

MR. SHAFFER: "*Article 23 of the Valard Agreement*" – for – and this is Miller Thomson and what they said: "*Article 23 of the Valard Agreement provides that in the event Valard encounters unforeseen geological or geotechnical conditions which it believes may impact upon its ability to complete the Works specified in Exhibit 9, Valard shall immediately notify LIL LP's engineer…To the extent that any unforeseen geological or geotechnical conditions constituted a 'Change', Article 14 of the Valard Agreement applied which required the approval of a change order by LIL LP*."

We state: "This term in the contract placed the risk for unforeseen geotechnical conditions on Nalcor however Miller Thomson" – also – "noted that …*Although this provision allowed Valard relief for unforeseen geological conditions, this is not an unusual provision and it was part if the original template agreement.*"

In conclusion – I'm on page –

MR. LEARMONTH: 83?

MR. SHAFFER: – 83.

MR. LEARMONTH: Line 3.

MR. SHAFFER: Yes.

In conclusion, Miller Thomson said that: "*As demonstrated by the examples of the LIL LP Approval Rights above, Valard was largely unable to increase the Project cost/price or extend the applicable schedules without the prior approval of LIL LP in the form of a change order or similar approval. The LIL LP Approval Rights included in the Valard Agreement provided an effective risk transfer 'tool' as they did not allow Valard to unilaterally increase the cost of the Project or extend the schedule in most circumstances. Therefore, it is our view that the Valard Agreement included the necessary and typical tools found in an agreement of this type to allow LIL LP to limit cost overruns and delays by withholding any requested approvals and seeking alternative solutions at that time.*"

MR. LEARMONTH: Okay.

MR. SHAFFER: In terms of the overall comments, we noted that "both the Astaldi and Valard Contracts did allocate a certain portion of the risk to Nalcor. Examples of this" – were – "Letters of credit not covering 100% of the contract price; Limitation of liability of the contractors limited to a certain percentage of the contract price; Performance bonds for the full amount of the contract price..." – it's just some examples.

However, with that said, Miller Thomson concludes: "*In conclusion, while certain contractual terms included in the Agreements were negotiated to be more favourable to the Contractors than as originally included in the Owners' template, we did not locate any contractual terms included in the Agreements that were clearly unsuitable for an agreement of this type. Included in the Agreements were contract terms providing the Owners with the ability to approve additional costs and time extensions, and to terminate the Agreements for convenience or for poor performance on the part of the Contractors. Therefore, delays and cost overruns that occurred cannot be attributed directly to the contractual terms of the Agreements themselves … contractual terms of the Agreements reflect a procurement/contractual strategy employed by the owners to limit the aggregate cost of the Project, and in so doing allocated a higher proportion of risk to the Owners.*"

And in particular, what that means is that contracts had lump sum prices, it had LMax provisions that limit the cost of the project to Nalcor for these scopes of work, which, in essence, would increase the premium upfront for that – in the contract price – there'd be a premium for that. And that's what they meant by this.

MR. LEARMONTH: Okay.

Okay. On page 84, you state your observations and findings, in paragraph 10.7.

Can you –

MR. SHAFFER: Yes.

MR. LEARMONTH: – go over that for us?

MR. SHAFFER: "When considering whether the terms of the contractual arrangements between Nalcor and its contractors contributed to delays and cost overruns, and whether or not these terms provided sufficient risk transfer from Nalcor to the contractors we have concluded the following:

"Nalcor had the control to approve additional cost and time extensions. However, as noted previously in the Valard contract, Nalcor accepted the risk of geotechnical conditions being worse than what was anticipated in the base estimate. Geotechnical conditions encountered during construction contributed to the cost overruns on this work package. However, Miller Thomson reviewed this article and noted that this is not an unusual provision.

"The contractual terms reflect a procurement strategy employed by Nalcor to limit the aggregate cost of the Project, and in doing so, allocated a higher proportion of risk to Nalcor as described in Section 10.6 above." Which is what I just testified to previously.

MR. LEARMONTH: But wasn't the – wasn't that inevitable, given the fact that the geotechnical conditions had not been examined in detail?

MR. SHAFFER: I'm not sure I follow you.

MR. LEARMONTH: Well, no contractor would give a fixed price for – in a situation, where they were putting up towers and the – geotechnical condition for the foundations were an open question.

MR. SHAFFER: Well, they – well, what they did in this contract, as I understand it, they did put a fixed price in, but they weren't going to take responsibility –

MR. LEARMONTH: Right.

MR. SHAFFER: – for geotechnical conditions.

MR. LEARMONTH: Correct.

MR. SHAFFER: Yeah.

MR. LEARMONTH: Yeah.

Okay, page 85, the Overall Project Management Structure Nalcor Developed and Followed.

MR. SHAFFER: Okay.

MR. LEARMONTH: What does – give us an overview of what you're examining in this section of your report.

MR. SHAFFER: The mandate was "*whether … the overall project management structure Nalcor developed and followed was in accordance with best practice, and whether it contributed to cost increases and project delays*."

And so we reviewed the Project Governance Plan, which was a draft document, and when we asked about it, Nalcor indicated to us that – or actually "LCP Information Management was unable to find an approved copy … of the Project Governance Plan or the Project Steering Committee Charter which was referred to in the Governance Plan."

So there was a draft Project Governance Plan. There was a Project Charter. There was a Project Execution Plan. Then from that there was various management plans as the graph on this page depicts, page 85.

We looked at the Project Charter.

MR. LEARMONTH: This is on page 86, is it?

MR. SHAFFER: Yes.

And it stated that the "'*Project Charter is applicable during the planning and execution of the Muskrat Falls Hydroelectric Generation Facility, Labrador Transmission Assets (i.e. transmission between Muskrat Falls and Churchill Falls) and the Labrador-Island Link Transmission Project during Gateway Phases 3 and 4...*' The charter clarified key responsibilities and objectives to be followed through the life of the project, including but not limited to the following: Responsibilities of the Gatekeeper," responsibilities of Nalcor Energy-LCP vice-president and responsibilities of Nalcor Energy-LCP project director. And of course, there we're talking about Mr. Martin, Mr. Bennett and Mr. Harrington.

MR. LEARMONTH: Mr. Martin is the Gatekeeper, is that correct?

MR. SHAFFER: Yeah, yes.

MR. LEARMONTH: Yeah.

MR. SHAFFER: "Business objectives for the project included: *'Develop the Project as the least-cost long-term supply of electricity for Newfoundland and Labrador;' 'Export production from the Project that is not used within Newfoundland and Labrador to neighbouring markets; and'; 'Develop markets and market access strategies that position Newfoundland and Labrador for realizing the value the Upper Churchill development when the Churchill Falls power contract expires*'" – this says 2014; it should be 2041. It's a typo.

MR. LEARMONTH: Okay. Correct.

MR. SHAFFER: That was our typo. It also – the Project Charter also talked about Nalcor's goals, core values and code of conduct. It indicated "Nalcor's responsibilities to shareholders which states *'Nalcor is responsible to develop the Lower Churchill Project on* *behalf and in the best interest of the people of Newfoundland and Labrador.'*" It talked about Nalcor's goals and outcomes measures, and it had a Project Mission Statement. And that was "*To develop Phase 1 of the Lower Churchill Project, respecting shareholder and stakeholder requirements and commitments, using best-in-class planning and execution practices in order to ensure the safe and environmentally sound delivery of an economically-viable source of clean, renewable energy to the marketplace in accordance with the Project Master Schedule.*"

MR. LEARMONTH: Did you find anything in the project charter that dealt with the subject of the matter of the communications between Nalcor and the Government of Newfoundland and Labrador?

MR. SHAFFER: I would have to double-check.

MR. LEARMONTH: You know, reporting and written updates and so on, did you find anything on that?

MR. SHAFFER: I would have to double-check.

MR. LEARMONTH: Okay.

MR. SHAFFER: I just don't remember.

MR. LEARMONTH: Okay.

Now we're on page 87, the Project Execution Plan (Scope and Approach)

MR. SHAFFER: Yes.

"The Project Execution Plan was approved for use in September" – 2001 – or I'm sorry – "2011 (prior to sanction). The purpose of this plan was to *'set out guidelines to ensure a consistent execution strategy and approach to the planning, organizing, directing and controlling of the Lower Churchill Project … provide a basis to developed detailed procedures for the execution of the work, provide a communication tool for the Nalcor Energy Lower Churchill Project … Project Team and other project stakeholders, and provide a high level overview of the LCP scope, facilities and execution strategy.'* The plan" – and these are our words – "The plan is applicable to the Project during phase 3 covering the engineering, procurement, construction and project management." And that's actually coming from their document, actually.

"The plan outlined the following: Roles and Responsibilities for the Project Director, Project Managers, Quality Manager, Function Managers and Team Members; The original control budget for the capital cost estimate which includes the base estimate, contingency and escalation." And the review of this document demonstrated that the management reserve was excluded from that.

The "Project execution and delivery strategy including the delivery strategy for EPCM services; Nalcor's Project Management Organization including the objectives of the organizational plan and the project organization matrix; Risk Management including key risks and management strategies; Key Performance Indicators; NE-LCP / EPCM Consultant Responsibility Matrix which outlines Nalcor's responsibilities compared to SNC's responsibilities as the EPCM." I believe that was the matrix I testified to earlier.

MR. LEARMONTH: In your investigation, did you see any evidence that this Project Execution Plan was given to the Government of Newfoundland and Labrador?

MR. SHAFFER: I don't know.

MR. LEARMONTH: You don't know?

MR. SHAFFER: I don't know.

MR. LEARMONTH: Okay.

MR. SHAFFER: In March of 2014, this execution plan was updated to reflect the change in the project management structure when Nalcor went from an EPCM to an integrated project team. And we talk about this change in more detail later in the report. "However, the change led to an *'Integrated Project Team, or Project Delivery Organization, consist of Nalcor and SNC resources as well as various third party consultants including Hatch, AMEC, Stantec, and independent consultants.'*"

"Prior to the change to an integrated model, the Project Execution Plan included" – the matrix that I talked about previously which, again, "outlined the responsibilities of SNC team members and Nalcor team members. After the change … the updated Project Execution Plan did not include the matrix. We asked Nalcor to *'… provide an updated matrix or explain what SNC responsibilities were and which of the responsibilities were transferred to Nalcor after the switch to an integrated team.'* In response to that request, Nalcor stated: *'After the Owner/EPCM model evolved to an Integrated Team model, SNC-Lavalin retained responsibility as Engineer of Record for all engineering and design. For all other responsibilities, they were allocated to the appropriate members of the Integrated Project Delivery team.'* Based on this response, we assume that the only responsibility retained by SNC team members after the switch to an integrated team was the engineering and design of the project. While we acknowledge that SNC employees were members of the integrated … team, based on the organizational chart it appears that the ultimate responsibility and decision making authority rested with … Nalcor PMT."

MR. LEARMONTH: Okay.

And this change to the integrated management team was started, you said, in 2012, is that correct?

MR. SHAFFER: The process started in 2012. It was formally announced in 2013, and then I believe there was an updated contract that was executed to reflect this change in 2014.

MR. LEARMONTH: Okay.

So SNC did not have – based on your review, you're saying that SNC personnel did not have decision-make authority for anything other than engineering?

MR. SHAFFER: It – well, based on Nalcor's response.

MR. LEARMONTH: Yes.

MR. SHAFFER: Yeah.

MR. LEARMONTH: Okay.

MR. SHAFFER: Sure.

MR. LEARMONTH: Okay, we next – we'll next turn to page 89, where you provide comments on the project management team's experience.

MR. SHAFFER: When we looked at the organization charts, and SNC, as we understand, was selected as EPCM contractor, originally, in part due to their hydroelectric experience. And, as we already noted, once the change over to the integrated project team occurred it appeared to us that many of the responsibilities that were assigned to SNC were reallocated to Nalcor. And this is – this organization chart on this page was the overall project leadership prior to the change to an integrated team.

MR. LEARMONTH: Okay. So why would that be an item of concern, that Nalcor was now taking over the – a lot of the role that was previously provided by SNC?

MR. SHAFFER: I mean, again – I mean, if you're hiring somebody for their hydroelectric experience and you now take them out of the role of, let's say, managing the contractors and whatnot, which was, I believe, was part of that in the responsibility matrix originally, and now you're just going to (inaudible) for design and engineering. It was a concern to look at it because of that.

MR. LEARMONTH: Okay.

MR. SHAFFER: So, we compared this chart to the organization chart that's included on this page after the change to an integrated project team. And we noted that the one change that was made: "that the only SNC employee that was added to this revised organization chart was Normand Bechard, Construction Advisor." In the way it was depicted on a chart, it said that he would report to Ron Power, the general project manager and was responsible for "*SLI Engineering Functional Reporting Relationship, SLI Corporate Interfaces, SLI HR, IT, Office and Administration Services*."

MR. LEARMONTH: Yeah.

MR. SHAFFER: We asked Mr. Bechard in an interview what were his responsibilities, and he noted to us that he left the LCP and he indicated that, and this is his quote: "*I have been a guy* *with very high responsibility and accountability*." – I'm now on page 90 – "*I'm there and I've got no accountability and no responsibility. Not even managing the SNC employees, they were managed by other people. As an advisor, no one was coming in my office. I was useless … Even though they weren't using me, I was perceived as someone with a lot of experience*."

MR. LEARMONTH: Yeah. To you knowledge, did Normand Bechard have a lot of experience in hydroelectric (inaudible)?

MR. SHAFFER: According to what he told us, yeah.

MR. LEARMONTH: Yeah. So he said he felt useless.

MR. SHAFFER: Those were his words.

MR. LEARMONTH: Okay.

MR. SHAFFER: "We considered" – meaning Grant Thornton – "whether the core project team" – and this is our term – "members included in the organizational chart above had the requisite experience to manage the LCP construction."

Mr. Harrington provided us with a list of, what he calls, core key personnel whom he and Mr. Bennett considered to be the individuals that would have been consulted with on key decisions, such as contract award recommendations, project changes, technical matters and project/cost and related matters.

And the key core personnel, the core key personnel he provided us was, I think about 40 names on that list. It was like a three-page document, I recall.

And the list did indicate that there were certain individuals with prior hydro experience. However, Mr. Harrington's list included the individuals – their hydro experience, also included while working on Lower Churchill.

MR. LEARMONTH: That wouldn't be prior experience, would it?

MR. SHAFFER: No.

MR. LEARMONTH: So why was that included in this chart?

MR. SHAFFER: You'd have to ask Mr. Harrington.

MR. LEARMONTH: Okay. So Mr. Harrington prepared this chart on page 90?

MR. SHAFFER: Well, we prepared the chart. It's just directly coming off what Mr. Harrington gave us.

MR. LEARMONTH: Okay. So he included time for these individuals working on the Lower Churchill Project?

MR. SHAFFER: Yes.

MR. LEARMONTH: So it wasn't prior experience?

MR. SHAFFER: Correct.

MR. LEARMONTH: Okay. And these figures were prepared – presented to you by Mr. Harrington, is that right?

MR. SHAFFER: Correct.

MR. LEARMONTH: All right.

MR. SHAFFER: So when you back out the folks that he indicated had hydro experience, when you take out while they were working on the LCP project, it looked like to us that Mr. Harrington and Mr. Kean had no years of hydro experience. And that we then compared six of the individuals on this list that were also included in the organization chart on a previous page, and they are as follows, that's: Darren DeBourke, Paul Harrington, Jason Kean, Scott O'Brien, Ron Power and Kyle Tucker.

Again, Mr. Harrington and Mr. Kean indicates hydro experience but includes LCP. Back out LCP, then there's no hydro experience for those two.

Ron Power did have hydro experience, and we looked – and I'm on the next page now.

MR. LEARMONTH: I just wonder, before you leave that chart on page 90, you got Paul

Harrington, hydro experience including LCP, he's got six years for himself and three for Jason Kean, and zero for Scott O'Brien?

MR. SHAFFER: We were confused about it, yeah.

MR. LEARMONTH: Because Scott O'Brien was – had been on the LCP team for a long time. So I just wonder why he would be a zero.

MR. SHAFFER: It's a question for Mr. Harrington to answer.

MR. LEARMONTH: Okay. But, anyway, this was taken from what he presented, Mr. Harrington presented to you?

MR. SHAFFER: Yes.

MR. LEARMONTH: All right.

Okay, carry on.

MR. SHAFFER: Next page, 91, right.

"We compared the years of experience in the summary provided by Mr. Harrington to resumes and other support provided to determine the number of years of hydro experience for these individuals. The only project management team member who had hydro experience prior to LCP was" Mr. Power.

And we noted here, from line 6 through 10, what his experience was. Now, the other thing I didn't understand about the chart that was provided to us is that –

MR. LEARMONTH: Are you talking about the one on page 91 or 90.

MR. SHAFFER: 90 now.

MR. LEARMONTH: Okay.

MR. SHAFFER: – is that when you look at that chart, Mr. Harrington indicated it was 11 years of hydro experience for Mr. Power, but when you – and then now go page to 91 – but when you add up from Mr. Power's résumé, well it looks like to be the years of hydro experience, I calculate 20. So I'm not sure, honestly at this point, okay.

MR. LEARMONTH: Okay.

MR. SHAFFER: All right.

Something – we also noted that Mr. Martin – and I'm on line 11 – and Mr. Bennett and Mr. Fleming "were not included in the list provided by Mr. Harrington. As such we reviewed their resumes and noted that none of these individuals had hydro experience prior to LCP."

In addition to that, there were individuals on the list provided by Mr. Harrington that had significant hydro experience. And we listed – we basically extracted from the chart those individuals that had 30 years or more experience, more of hydro experience. And there's others that have less than 30 years, greater than 20. I just chose 30 as a judgment call to list it in the report.

Something about this chart is I want you to note that John Mallam, that's a typo, that should be 35 years. And also, what's excluded off this chart that should be on this chart is a gentleman by the name of Dave Brown, he had 30 years.

MR. LEARMONTH: But when you say hydro experience, 30 years, that doesn't – are you saying of constructing hydroelectric projects such as dams and transmission lines?

MR. SHAFFER: I – well, I don't know, but one thing to note is that some of these folks who had a lot of hydro experience didn't have any megaproject experience. So I don't know what size projects that they were – what their experience is.

MR. LEARMONTH: Okay.

MR. SHAFFER: Others – others such as David Besaw, it looks like that he had megaproject experience and hydro experience. So we did note that, that there were folks that had hydro experience.

The table continues on –

MR. LEARMONTH: So Mr. Harrington prepared the chart – compiled the information for the chart on page 90, and who –

MR. SHAFFER: 91 or 90?

MR. LEARMONTH: And 91 also?

MR. SHAFFER: 90 and 91.

MR. LEARMONTH: So he provided the information for both those charts?

MR. SHAFFER: Yes, this all came from Mr. Harrington.

MR. LEARMONTH: Okay, and the only exception is John Mallam should be 35.

MR. SHAFFER: Thirty-five, and Mr. Brown should be added on it, which is 30, because that was on Mr. Harrington's chart and when this was compiled it was missed.

MR. LEARMONTH: Okay.

And that chart continues on to the top of page 92, correct?

MR. SHAFFER: Yes.

MR. LEARMONTH: Yeah.

MR. SHAFFER: And so we compared the table above to the résumés and other supporting documentation to determine the years of experience and the time frame that the individuals involved with the LCP.

And we state on line 4 through 7 that: "The supporting documentation which indicated the years of experience was provided by Nalcor as was the timeframe that the individuals were involved in the LCP. Based on the information provided, it appears that there were a number of individuals on the integrated project team who had significant hydro experience."

Starting on line 8 through 19 we reviewed Professor Flyvbjerg's testimony and his charts, and he demonstrated on his chart that regarding – "… that on average, cost overruns for hydro-electric dams are significantly higher than oil and gas related projects."

And you can see on the chart, which is an excerpt from what he – from his chart, that for hydroelectric dams the cost overrun as a mean was 96 per cent and the frequency of the overrun was 77 per cent, and that mining, oil and gas – the cost overrun was 17 per cent and the frequency was 60 per cent.

So, based on that data, obviously hydroelectric dams are riskier than oil and gas platforms, for example – for mining, oil and gas.

And then we reviewed his testimony – that was where he gave testimony September 17, where I believe it was you, Mr. Learmonth, where you asked him " …whether the skills and experience of the project management in oil and gas sector can be transferred to a hydroelectric dam and transmission project."

And he stated: "*I would say, yes, a lot of skills can be transferred and it would be a huge advantage that if you are working on any megaproject that you worked on another megaproject before. That being said, however, I would say that there also need to be people on the team who have specific domain experience from the – from dams, if you're building a dam.*"

Now I – the excerpt of this testimony is paraphrased a little bit in that it's missing – I think in a part, he actually said, also people that built large dams, such as this, for example.

MR. LEARMONTH: So the quote is incomplete?

MR. SHAFFER: I think it's incomplete, yeah. When I read it and compared it to the testimony.

MR. LEARMONTH: Okay, well we can check that out.

MR. SHAFFER: You could pull his testimony. It's – that's where I got it from.

So, on the average: "As shown above, the core project management team …" – and again – "… with the exception of Ron Power, did not have any hydro experience prior to LCP. On average, they did have 14 years of megaproject experience, primarily oil and gas related. There were other individuals on the integrated team that had significant hydro experience." But when you average the number of years that they had on megaprojects, experience was four years.

MR. LEARMONTH: The – when you say the – there were other individuals on the integrated team, does that include SNC personnel?

MR. SHAFFER: I would have to double-check the chart; I'm not sure.

MR. LEARMONTH: All right.

All right, now page 93, you deal with schedule management, and you refer again to Edward Merrow of IPA.

MR. SHAFFER: Yes.

MR. LEARMONTH: Okay, take us through that first paragraph; that's line 1-7, please.

MR. SHAFFER: Well, one of the first things Mr. Merrow says about – in his book, it says early, I think page 2, he says – states that "*Schedule pressure dooms more megaprojects than any other single factor. When there is pressure to move a project along quickly from the outset, corners get cut and opportunists have a field day.*"

He goes on to say: "*No project should be deliberately slow…But taking risks with megaproject schedules is a fools game…If the economics of the project require an accelerated schedule, then the appropriate conclusion is that the project is uneconomic and should not be done.*"

And now, with – on line 8; on forward, now – project – we tracked, you know: "Project milestones were tracked and included in the monthly construction reports that were submitted to the Collateral Agent, Toronto Dominion bank and the Independent Engineer."

As far as we could tell in reviewing of these reports, "There was no indication of schedule slippage contained in these reports until the reports for the period ending July 31, 2015. At this time, the project milestone dates still remained unchanged but were listed as 'under review' and they remained under review for a full year until June 2016 …" – after Mr. Martin's resignation – "… when the category titled …" – this category isn't exactly right – "*Full Power from Muskrat Falls.*" It should be commissioned and complete, given those dates – "… shifted ahead 2 years from June 2018 to June 2020."

The report explains that: *"... a Quantitative Cost and Schedule Risk Analysis was completed for Muskrat Falls Generation based upon an assessment of risks to project completion and an analysis of the associated impact on cost and schedule*" and that the revised dates "*... reflect the high end (P75) of the probabilistic range of most likely outcomes resulting from this Risk Analysis.*"

So, when we look at what was happening during this time, we know that: "During the period from November 2013 to June 2016 when the … milestones …" – while the "milestones remained unchanged" – that certain events that were occurring that potentially "… should have triggered the project team to consider whether the schedule had been impacted (and additional costs … incurred because of schedule slippage) …"

In particular, you have: "Astaldi's late start in 2013 resulted in slow mobilization and delays throughout 2014 …" You have: "Astaldi's production rate for concrete placement was behind schedule essentially from the beginning to at least the middle of 2015 …" And you have: "In December 2014 into the winter, the Integrated Cover System was only half completed which impacted the ability to work through the winter and thus would impact productivity negatively."

In response to this – in response to our question "… where we requested a copy of the schedule analysis recently prepared, Nalcor provided a document titled '*Reasonableness of the Attainability of 2017 First Power*' prepared on October 18, 2018. We reviewed this document which notes it was prepared in order to address questions and statements raised during the Muskrat Falls Inquiry related to the attainability of first power in 2017. We gave no weight to this document for the following reasons …"

"Westney's analysis from 2012 noted that there was an extremely low probability of achieving the schedule. To the best of our knowledge, Nalcor did not perform an analysis at the time of Westney's report to conclude …" – back in 2012, prior to sanctioning – "… to conclude why they felt the schedule was attainable in light of Westney's conclusion. If such an analysis was prepared …" we haven't seen it; it wasn't provided to us.

"The analysis that was provided, was prepared in 2018 (approximately 6 years after the project was sanctioned) with the benefit of hindsight."

Now, we also have to remember what was going on at that time. We had SNC, in particular Paul Lemay in his May 2012 email to Jason Kean, saying that the schedule was quite aggressive, and they put the time or money provision in the contingency plan.

We also know in this report that was – the reasonableness of the attainability of first power, one of the things that was quoted, or why they thought it was reasonable, was the independent engineer in his November 29 report indicated that the range of these type of projects takes five to seven years to complete, and that the report that was provided by Nalcor here indicated that was – that, oh, I'm sorry – that indicated in the independent engineer's report that 5.25 years, which was the schedule for this project, was within the range.

However, what's also in that report, and then particularly on page 78 of that report –

MR. LEARMONTH: Are you talking about the independent engineers report?

MR. SHAFFER: Yes. The one that was dated November of 2013.

MR. LEARMONTH: November 29, 2013?

MR. SHAFFER: Yes.

MR. LEARMONTH: Yeah.

MR. SHAFFER: That this project had multiple critical paths and that it was considered risky by industry standards and, statistically, there was a greater probability of overrun of slippage, I mean of slippage – schedule slippage. And so that was known as of November 2013 too, which was not stated in the Reasonableness of the Attainability of 2017 First Power report.

Additionally, we know that when you look at, again, the Westney analysis, the risk adjusted schedule, P1 was December '17 full power. P50 was March '19, a 15-month delay and P90 was a September '19, 21-month delay, and we know that Westney felt that there was 11- to 21-month delay for this project potentially.

Additionally, there's a letter that we reviewed, it was dated June 6, 2016, from Stan – I'm sorry from Mr. Harrington to Stan Marshall. In the letter Mr. Harrington states this to Mr. Marshall: It was decided to impose a very aggressive approach to cost and schedule. While it is not my place or intention to comment on the rationale for those decisions, the project management team is now taking criticism for earlier decisions and that seems to me to be somewhat unfair. The project management team's job is to follow the instructions, directions provided at sanction.

So, given all that, it seems me that the attainability of first power is this document that's prepared; I'm personally discounting it.

MR. LEARMONTH: You're personally –?

MR. SHAFFER: Discounting it; giving it no weight.

MR. LEARMONTH: Why?

MR. SHAFFER: Well, because of all these reasons.

MR. LEARMONTH: Yeah.

MR. SHAFFER: You have the Westney schedule analysis –

MR. LEARMONTH: And that was in September 2012 and it said a 1 per cent chance and that it's elevated to a 3 per cent chance in September 2012, correct?

MR. SHAFFER: Yes.

MR. LEARMONTH: Yeah.

MR. SHAFFER: They indicated the schedule was going to have 11- to 21-month slippage. You have the independent engineer report back in November of 2013 indicating what he felt in terms of the multiple critical paths, and this is considered risky by industry standards and statistically greater probability of slippage. You have, as we all know, the SNC – the email from Paul Lemay to Jason Kean saying it was quite aggressive with the schedule in terms of the concrete pour rates placement and it needed to put a time or money provision in a contingency plan, which I know Nalcor did, but we all know, as part of the management reserve, that wasn't part of the project budget.

And then you have this email, or I'm sorry, this letter from Mr. Harrington to Mr. Marshall, granted it's June of '16, but it seems to me he's referring – at the time the decision was made – that it was decided to take – impose a very aggressive approach to class and schedule. And so given all that – and it was extremely aggressive, these are – this is Mr. Harrington's words.

MR. LEARMONTH: So on what date did the – was there an adjustment made in the projected – in the schedule for first power?

MR. SHAFFER: I recall seeing a timeline prepared by the project management team, where I thought, in February of '13 they pushed back first power six months.

MR. LEARMONTH: Okay.

MR. SHAFFER: In February of '13.

I then – and then based on what I just testified to, it seemed – I think it stayed that way until June of '16 when everything was pushed back, it looks like about two years –

MR. LEARMONTH: But the first year –

MR. SHAFFER: – on the construction reports.

MR. LEARMONTH: February '14 was not a –

MR. SHAFFER: February of '13.

MR. LEARMONTH: I'm talking about the first year that Astaldi was working, roughly, 2014. There were further delays in Astaldi's performance, is that correct?

MR. SHAFFER: Oh sure, yeah.

MR. LEARMONTH: And was that – did that have any bearing on the schedule from – based on your assessment?

MR. SHAFFER: Sure it would.

MR. LEARMONTH: In what sense?

MR. SHAFFER: Well, it's going to push the schedule back. I mean here's the point. Remember that, by as early as March of '14, Mr. Harrington, in his presentations to executive, indicated that his dollar figure, what he thought the financial forecasted costs were going to be, did not include the impact of Astaldi for cost and schedule.

So, obviously, it was being contemplated. There was an issue.

MR. LEARMONTH: And that's over on top of the P1, P3 Westney assessment, is that correct?

MR. SHAFFER: Yes.

Yes, in essence, what Westney predicted would happen, happened –

MR. LEARMONTH: Okay.

MR. SHAFFER: – in terms of schedule.

MR. LEARMONTH: All right.

Is there anything further you want to say on that subject?

MR. SHAFFER: No.

MR. LEARMONTH: No.

Okay. We'll now turn to page 95, Project Management Structure. Please take us through that portion of your report.

MR. SHAFFER: Sure.

Nalcor, when considering how to structure the project management team, they considered three structures: the Integrated LCP team, the EPCM model and the EPC contractor. And the table basically summarizes what the activity is for each of the options. And as you can see with the Integrated LCP team, the integrated team would be handling oversight and controls and audit, the phase 3 engineering, the project management, engineering, procurement, cost/schedule, project services, site management, overall labour setup, and that labour issues and construction supervision will be handled by construction contractors.

On option 2, which is the EPCM model, the oversight and controls would be handled by LCP, and that the phase 3 engineering and everything else up until the labour issues and contractor – construction supervision will be handled by the EPCM contractor. And then labour issues and construction supervision under that model will be handled by the construction contractors.

MR. LEARMONTH: And this chart at the bottom of page 95, can you confirm that that was based on information provided by the project management team's presentation in May – identified in footnote 510?

MR. SHAFFER: Yes.

MR. LEARMONTH: Okay. So that was information you got from the project management team?

MR. SHAFFER: Yes.

MR. LEARMONTH: All right.

MR. SHAFFER: And then option 3 was the EPC and the engineer, procurement and construct, where the oversight, controls and audit would be handled by the LCP and everything else would then be handled by the EPC contractor.

So, this depicts the differences between the various models.

MR. LEARMONTH: Okay. On page 96 you deal with the Selection of EPCM.

MR. SHAFFER: "When considering the three project management structure alternatives, Nalcor performed screening through international contractors during 2008 and 2009 and" – they – "also engaged Hatch Energy to undertake a study with the objective to determine the amount of additional Front End Engineering Design … engineering that would be required in order to produce the required performance and functional…" – specs – "and drawings required for an EPC-type arrangement. Based on these two studies, Nalcor concluded that an EPC option would increase the overall project duration and therefore the first power date, and would also attract significant risk premiums. Therefore, Nalcor focused their efforts on the Integrated LCP Team and the EPCM contractor options."

And then, "In February 2009 Nalcor released an Expression of Interest … to six contractors. The" – expression of interest – "indicated that Nalcor planned to utilize a fully integrated project management team. However, it" did state that '*While Company contemplates using a Company led integrated project management team model, Consultant may include, as an alternative, other proposed project delivery models for consideration by Company.*'" And that "The responses received from these contractors indicated support for the Integrated Project Management Team, but in general the contractors were more experienced in and showed a preference for the EPCM model. As a result, Nalcor ultimately selected the EPCM contractor model for the project management structure."

MR. LEARMONTH: So the integrated project management was the first consideration that Nalcor made? They were leaning that way early in the game?

MR. SHAFFER: Appears that way.

MR. LEARMONTH: Yeah.

MR. SHAFFER: Appears that way.

So in July 2010, an RFP goes out for engineering, procurement and construction management services – basically, the EPCM services – it "was issued to three contractors. In December 2010, SNC … was issued a letter of intent and in February 2011 they were awarded the contract for this work package.

"According to the Project Team, SNC was selected because they had the most contemporary knowledge in hydro. It was also noted in the Overarching Contacting Strategy that *SNC-Lavalin*" –

MR. LEARMONTH: Now, you're quoting here. Who's the quote from? I think it's (inaudible) –

MR. SHAFFER: It's –

MR. LEARMONTH: – 521?

MR. SHAFFER: Five-twenty, it looks like. NAL0018452, the Overacting Contracting Strategy, dated February 29 of 2012.

MR. LEARMONTH: Great, that's footnote 521, I think.

MS. O'BRIEN: Five-twenty.

MR. SHAFFER: Five-twenty.

MR. LEARMONTH: (Inaudible) – yeah, okay. It's 5 – okay, go ahead.

MR. SHAFFER: Okay.

MR. LEARMONTH: It's also 521. Five-twenty and 521.

MR. SHAFFER: Okay. "It was also noted in the Overarching Contracting Strategy that '*SNC*'" – this is a quote – "'*SNC-Lavalin Inc. offers the world-class engineering, procurement and construction management experience required for a project of this magnitude. Their specialization in hydroelectric developments, transmission, HVdc and civil works will be critical to the successful construction of the Lower Churchill Project.*' As the EPCM Contractor, SNC was responsible '*for the completion of all project engineering and detailed design, construction execution planning, procurement of permanent plant equipment, issue and management of all supply and construction contracts, and overall construction management for the Project, including custodian for the Project work sites, and Project Completions*' with the exception of the Strait of Bell Isle … crossing." And that's coming from the same document, the Overarching Contracting Strategy.

I'm now on page –

MR. LEARMONTH: Ninety-seven.

MR. SHAFFER: – 97.

We were told that early on "they experienced performance issues with SNC" – they meaning Nalcor, and then – "shortly after the contract was awarded, including turnover of key project resources, the failure to complete key project deliverables, lack of adequate systems and tools, and significant organization and alignment gaps."

And I suppose, Mr. Learmonth, I can go through each one, or we could just say that because of all this, Nalcor switched to the integrated project team. Or – how would you like me to do this?

MR. LEARMONTH: I'd like you to go through them, the items.

MR. SHAFFER: Okay.

MR. LEARMONTH: Yeah.

MR. SHAFFER: Okay.

MR. LEARMONTH: Because this was a key shift in strategy, was it not?

MR. SHAFFER: Sure, yeah.

MR. LEARMONTH: Yeah.

MR. SHAFFER: Okay. So "During the Engineering and Procurement phase of the Project, SNC struggled to provide the required resources. Several key personnel listed in the Agreement did not mobilize to the project and there was significant turnover of key positions. In particular, the PMT noted that from January 2011 to January 2012, the Project Controls Manager position turned over four times, the General Project Manager position turned over three times, and the Project Manager position turned over twice. This was confirmed" – by us – "during an interview with Paul Lemay the Lead Estimator from SNC. Mr. Lemay indicated that the SNC Project Manager whom he reported to, changed four times between May 2011 and September 2013. Subsequent to September 2013, the SNC person was replaced by a Nalcor employee."

When we asked Mr. Lemay why there was so many changes, he said, and this is a quote, "*That's not something I can answer. I don't know why these people left… It was uncomfortable I can tell you that, to go through all people and get used to them. For me it was tough, but why exactly these guys are gone, I don't know. It was tough for me to change from one to another*."

We also know that, "Since September of 2013, Nalcor has replaced this position on three separate occasions." We spoke to Norman Bechard, the former director of general project, Lower Churchill, SNC. We asked him, "whether the reason for the change to an integrated team was due to the staff that SNC" – was providing. And he indicated to us, "*I brought senior men and women and they didn't want any of them*.

"The lack of resources and turnover was also identified in the Lower Churchill Project Review Report completed in March 2012. This report was an assurance review commissioned by Nalcor to assess the readiness of SNC's people, processes and systems for DG3 deliverables." I am on the following page.

MR. LEARMONTH: Page 98?

MR. SHAFFER: Yes, line 1. "The purpose of the review was to identify any potential gaps in DG3 deliverables." And what this review indicated is that, "In relation to lack of resources, the Lower Churchill Project Review Report noted that *SLI*" –

MR. LEARMONTH: That's the same as SNC, right?

MR. SHAFFER: Yes.

MR. LEARMONTH: Yeah.

MR. SHAFFER: And this is a quote from the report. "*SLI have several senior positions open, which at this stage of the project is a very serious concern. Furthermore, several positions are on the third incumbent which, severely impacts team performance.*' In addition to this, the report noted that '*in several*'" – this is a quote – "'*in several senior positions SLI*'" – which is the same as SNC – "'*have not provided personnel who have both SLI knowledge and experience and 'Hydro' experience. Many have excellent 'Hydro' experience and need to be supported in the SLI systems and procedures to deliver the desired level of performance*.'"

In terms of completion of key deliverables, that "During the Engineering & Procurement phase of the Project, SNC failed to complete a significant number of Decision Gate 3 Deliverables by the contractual date" – which was December 2011.

In February 2012, "Nalcor sent a letter … to SNC explaining that due to inconsistencies between the information transmitted by SNC, the gate 3 deliverables list, and the information located on the DVD that SNC had provided, Nalcor was not able to process the information that they had received. The letter explained" – and this is coming from the letter. This is a quote, that "*Nalcor is attaching for SLI action Opportunity for Improvement No. OFI-0013, which documents this issue. The intent of the Opportunity for Improvement is to document a significant issue that requires SLI to determine the root causes, evaluate the need for actions and the planned action to correct the issue in order to prevent its reoccurrence*."

The same cold eyes review, which was March 2012 – the report I just testified to, on the previous page – was performed – that report indicated that, "'*the project is not ready to proceed to Gate 3*' and while the contract deliverables were tracked using a checklist format, the checklist was missing target dates. The report recommended, '*a detailed plan for achieving Gate 3 goals be developed and rolled out to the groups to ensure full alignment*.'"

We asked Mr. Lemay about the timeline of the DG3 gate deliverables, including the estimate, and Mr. Lemay explained, they had to – and this is a quote – "'*had to turn that estimate for December 15, 2011*.' He also noted that it was very rushed and explained, '*We are rushing to get this thing real quick and we have tried to do our best but it's tough. $5 billion in six months was quite a challenge. But we did finish in time for December 15th and we turn in what we call cost of project to the best if our knowledge. All the quotation we got, we produced 13 binders that we turned into Nalcor in December 2011 and by May 2012 we had 43 binders*.'"

MR. LEARMONTH: So do you have any comment on the point that it appears, based on this information, that there was at least some legitimacy to the concerns that Nalcor had about the performance of SNC.

MR. SHAFFER: Yes.

MR. LEARMONTH: Yeah.

MR. SHAFFER: Yes, absolutely.

MR. LEARMONTH: Yeah.

Okay, we're at 12:30 now. Is it your intention to break for lunch or will we go on further?

THE COMMISSIONER: Yes, we'll break here now, from now until – we'll come back at 2 o'clock this afternoon.

All right.

CLERK: All rise.

Recess

CLERK: This Inquiry is now in session.

Please be seated.

THE COMMISSIONER: All right, Mr. Learmonth, when you're ready.

MR. LEARMONTH: Okay.

A couple of points I want to make before we go back to the evidence. The – I wanted to enter into evidence the unredacted GT report; that's C81. I just wanted the – everyone to know that although what appears on the public record is a redacted version of the Grant Thornton report, P-01677, the Commissioner has access to the unredacted portion.

So, the reason for the redactions was to – was commercial sensitivity. That by allowing the unredacted version to go into the public record, there's potential that it could encourage claims from contractors or could have an adverse effect on Nalcor's ability to deal with claims. So, it was for those reasons that the Commissioner, following an application by Nalcor, agreed to certain redactions.

But I just wanted to assure everybody that the Commissioner will have access to the unredacted so that when the Commissioner is preparing his report, he will have all that information. Obviously, he won't refer to the redacted portions in his report, but he will have access to it and will be able to take it into account before he concludes his report.

So if exhibit – the GT report C81 could be entered, and that's the unredacted version of the report that Mr. Shaffer is speaking to today.

THE COMMISSIONER: Okay, that report will be one of our confidential exhibits. That'll be marked confidential exhibit 081.

MR. LEARMONTH: Yes.

And there's one other point I wanted to raise before we go back to the evidence. That I'm going to be finished, I imagine, by 4 o'clock, if not a little before there. So the parties – we have two more days for Mr. Shaffer.

So we'd probably like to get some indication from the parties as to whether they would like to break when I finish my examination chief, or – which I imagine will be around 4 o'clock, perhaps slightly before that. Or whether there's a consensus to continue on for the extra half hour or 45 minutes, bearing in mind that we have two full days set aside for Mr. Shaffer, that being tomorrow and Thursday.

So, we can either decide that or get views on it now, or we can wait until I finish and then we'll have a better idea of the timing.

THE COMMISSIONER: Or maybe wait and let's see where things are at the break and counsel can sort of talk – you can talk to counsel and see where you want to go.

MR. LEARMONTH: Okay, thank you very much.

Mr. Shaffer, the – I asked you this morning about the – I think it was the Project Charter and the Project Execution Plan they refer to on page 86 and 87 of your report.

MR. SHAFFER: Yes.

MR. LEARMONTH: And I asked whether you had any knowledge as to whether either of these documents was received by the Government of Newfoundland and Labrador. Were you able do any check of records to answer that question?

MR. SHAFFER: We checked at lunch, and what we came up with on the Project Charter, it only really outlines what was supposed to have happened with the communication. For examples, on the responsibilities of the Gatekeeper, he was responsible for the approval of the Project Charter and for its communication to the Nalcor board and the shareholder.

It talks about also, under Nalcor's Core Values, about having open communication, which is: "*Fostering an environment where information moves freely in a timely manner*." And then there's a section that talks about responsibility to the shareholder where Nalcor, with the government, is to ensure alignment with the interests of the shareholder and to ensure that they're cognizant of the shareholder needs and policy objectives, and to ensure that Nalcor's actively seeking alignment with those interests.

MR. LEARMONTH: Okay.

MR. SHAFFER: That's all I saw that in the Charter itself, but I don't know what's been communicated to the government (inaudible).

MR. LEARMONTH: Okay, so you can't say one way or the other, except we can say that you don't have any evidence to support the conclusion that it was – is that correct?

MR. SHAFFER: Correct.

MR. LEARMONTH: But it may have been?

MR. SHAFFER: Could have been, sure.

MR. LEARMONTH: Yeah.

And that – does the same thing apply to the project execution plan?

MR. SHAFFER: Well, again, it could have been, I –

MR. LEARMONTH: Okay.

MR. SHAFFER: – haven't seen anything.

MR. LEARMONTH: You don't know for sure.

MR. SHAFFER: I don't know.

MR. LEARMONTH: Okay, thank you.

Okay, we'll now return to page 99. We left off at the end of page 98 before the lunch break. So you just carry on with your discussion of the matter under consideration in paragraph 11.9.3 on page 99, lines 1-7.

MR. SHAFFER: Yes, one of the other issues that was noted in the Lower Churchill Project Review Report was that some of the required systems and tools that have been recently brought into the project, which is very late, and cannot be considered a best practice. And that this is the cause of great frustration in both teams and considering SLI extensive experience, it is a very serious deficiency in their performance. The report also noted that it was frequently mentioned that improvements in quality were not evident. And that document-control process is a major bottleneck and needs to be reviewed to improve the timely flow of documents between the groups.

MR. LEARMONTH: Yes.

MR. SHAFFER: The next section talked about Significant Organizational and Alignment Gaps. And the report identified that, "*for the focus areas that were reviewed the two project teams* [Nalcor and SNC] *are not aligned*. *There was no demonstrated collective accountability also, there was no feeling of a collaborative working relationship*." And the report also noted 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 major contractors are brought on*."

Nalcor then basically intervenes, and in response to the challenges with SNC performance they implemented Deloitte organizational effectiveness program, which is in the next paragraph – we'll talk about that. They sent various letters to SNC regarding their performance and particular issues. They implemented some mitigation efforts. They engaged PowerAdvocate to evaluate the project's contracting and packaging strategy. And, again, they've had this Lower Churchill Project review report that was done.

MR. LEARMONTH: Okay. So this is further evidence, do you agree, that all is not well between SNC and Nalcor at this stage?

MR. SHAFFER: Absolutely.

MR. LEARMONTH: Okay.

At the bottom of page 99 and commencing on line 24 you deal with the Deloitte Lower Churchill Project Team Effectiveness Programme. Can you take us through that please?

MR. SHAFFER: Yes.

In May 2012, Nalcor engaged Deloitte to run a team effectiveness program. And what Deloitte did, they conducted a number of working sessions, they had surveys, they interviewed folks, they engaged in feedback sessions and group exercises. And the results of these exercises and surveys were used to assess the teams and rate them on a number of competencies in comparison to high-performing teams. And the project team noted that, "*While Deloitte's roadmap to team effectiveness proved to have good value, it did not change the broader issue with SLI's performance gap.*"

Deloitte did note some common – "… noted some comments from interviews and surveys that were related to the SNC team members. Overall, there was an uncertainty of the working relationship between Nalcor and SLI in the future. It was also noted in the Deloitte review that there was a broad consensus in the early stages that SNC was not performing well and did not execute on their agreement."

Nalcor sent various letters to SNC through the course of this expressing concerns in a number of areas, "including the transmittal of SNC deliverables, turnover of various positions, and contracting strategy alignment." One letter, for example, on October [sp. August] 29, 2011, Nalcor wrote a letter to the SNC project manager which stated: "*please be advised that Nalcor rejects this document as submitted… This document fails to include fundamental requirements of the Project Control Schedule as detailed in Exhibit 5, Section 18 of the Agreement, and as such cannot be approved as the Baseline by Nalcor.*"

The project management team also indicated that Nalcor implement mitigation efforts, in particular: "Arrange for engineering work to be performed in SNC's Montreal offices. Originally, SNC team members had worked from the St. John's office on Torbay Road as the government required all engineering work to be completed in the province."

MR. LEARMONTH: So this was a mitigation effort introduced by Nalcor, by allowing the engineering work to be done in Montreal rather than St. John's?

MR. SHAFFER: That's my understanding of it, yeah. And this was in the project management team presentation –

MR. LEARMONTH: Yes.

MR. SHAFFER: – to us and that's where this came from.

MR. LEARMONTH: Yes.

MR. SHAFFER: Nalcor engaged PowerAdvocate and: "In June 2012, PowerAdvocate completed an assessment" – review – "with the purpose '… *to deliver strategic insights (both risks and opportunities) to the Lower Churchill project team based on a 'fresh' look at Nalcor's contracting and bid packaging strategies* ….'"

"The review noted that the '… *EPCM model is well supported and is consistent with the most common contracting approach that we have seen used on Transmission projects* ….' It also explained that there are some risks related to the model but concluded that '*There is no 'silver bullet' when it comes to contracting approaches and the best an owner can do is to make sure it is set up with appropriate resources and risk focus to obtain the benefits and to manage the drawbacks of the selected approach. Based on our review*" – meaning PowerAdvocate's review – "*of the documents reference earlier and our* *understanding of Nalcor and EPCM resourcing and compared with our other project experiences, we believe that the project team has sufficient resources, expertise and focus to manage these risks*."

So in response to all of this – and I'm on page 101 – in response to all of this, Nalcor, they did understand that the risk exposure was unacceptable and that the post-sanction – and that post-sanction the risk would only increase. And what this did, it "resulted in a renewed drive to integrate and it became clear that the only way to reduce the exposure of risk and a lack of project management capability was to switch from an EPCM to an integrated delivery model." And on March 12, 2013, Mr. Bennett sent an email to the Lower Churchill Project staff announcing that "*… the organization structure for the Integrated Management Team responsible for execution, for engineering, procurement and construction management for the Lower Churchill Project has been finalized*."

MR. LEARMONTH: Yeah.

So that was the process you'd described earlier as commencing sometime in 2012, and ultimately on March 13 – March 12, 2013, the integrated team approach was – the plans were finalized.

MR. SHAFFER: Yes.

MR. LEARMONTH: Okay.

MR. SHAFFER: "We asked Williams Engineering to review the project management structure and they noted … '*Once a contract format is selected, planning and project organization processes are set in motion that align with the contract methodology. Therefore, changing project management strategies after a project begins is not best practice.*'"

MR. LEARMONTH: Yeah.

Now, that's an opinion expressed by Williams. Did you find any other opinions that were not consistent with that opinion, or that complemented that opinion?

MR. SHAFFER: Well, we could go further. I mean, there's a lot of things –

MR. LEARMONTH: Okay. (Inaudible), okay.

MR. SHAFFER: – that's noted. Okay.

In the integrated model, both organizations – meaning SNC and Nalcor – "were to jointly contribute resources to the project team. SNC would retain responsibility for engineering. The PMT indicated that: '*While this risk reduction measure was successful and has been acknowledged by external stakeholders and reviewers, its implementation occupied significant management resources during a critical period of the Project*.'"

The independent engineer was engaged to review the project – as we know – prior to financial close. "With regards to the change from an EPCM model to an Integrated Project Team, the IE report indicated that the EPCM Agreement '*… is a well prepared and comprehensive contract that places the responsibility for design of a successful project on SNC-L, in MWH's opinion*.' The IE … also acknowledged the change to integrate in 2013 and stated that '*The organizational model shift is viewed as a key enabler of team effectiveness, which is considered imperative for delivery of this megaproject*' and '*… in our opinion, based on their past experience, the Integrated Project Team consisting of SNC-L … and Nalcor … are qualified to design, contract, manage, commission, operate and maintain the three projects currently under design and construction for the LCP*.'

"Independent Project Analysis Inc." – which is Mr. Merrow's company, IPA – "also completed a Mid-Execution Assessment of the Nalcor Lower Churchill Project in December 2015. This review noted that the '*Project team is fully integrated with all functions that have influence on project success*' and rated the LCP project as 'good' which is above the Megaproject average rating of 'fair.'"

We also did research under the Merrow publication and that indicated that integrated teams generate better projects. It also said: "However, '*for a project of average complexity, the integrated core team was twice as large on average as the nonintegrated team.*'" Reporting more resources obviously, but it does perform – does generate better projects.

We asked R.W. Block to provide the review and they indicated that: "*The project management structure used by owners depends on their internal level of staffing and the skill sets that owner's internal staff possess.*" They also noted that an EPCM model is a *common approach in the utility sector…especially if the engineering is also being performed by the same firm selected to perform the construction management functions*."

So after going through all this, we concluded – on lines 15 and 16 – that: "Therefore, both the integrated and EPCM project management structures are common models and there does not appear to be one single best practice for selecting a model."

MR. LEARMONTH: Right.

So would you conclude from that that the decision of Nalcor to go to an integrated team was reasonable?

MR. SHAFFER: Yes.

MR. LEARMONTH: Yes.

MR. SHAFFER: I mean, I mean there having struggles with SNC.

MR. LEARMONTH: Yes.

MR. SHAFFER: They had to do something.

MR. LEARMONTH: Yeah. Okay.

Now under the heading Key Performance Indicators, on page 102 – can you take us through that subject?

MR. SHAFFER: Yes.

In Mr. Merrow's book he indicates that: "*The role of the owner team is to generate comparative advantage for the sponsors. The team is where all of the owner functions come together to take the business opportunity and generate a project that is fashioned to the particular strengths and talents of the sponsor organization.* He also explains that *the clarity of the business objectives to the project team correlates with key measures of project results; cost competiveness…cost overruns… execution schedule competiveness… schedule spillage… operability… success… The key to the formation and development of effective teams is developing projective objectives*."

With regard to the Key Performance Indicators, we were inquiring into how it was monitored throughout the project and in particular, we were concerned with those KPIs related to cost and schedule performance as these were key measures outlined by Mr. Merrow.

We asked Nalcor about it and this is the response that we received from them: "*Cost Performance Index*" – and I'm on the following page, I'm sorry.

MR. LEARMONTH: 103.

MR. SHAFFER: Yeah, we're there, okay.

"*Cost performance index… is not tracked at the Project level… Many of the Contracts on LCP are either lump sum or lump sum/unit rate … Nalcor would have no visibility with respect to actual cost, only invoiced/paid costs*.

"*Budget vs. Final Forecast Cost (FFC) on the LCP has been monitored extensively throughout construction… the latest approved AFE budget remains constant from one reporting period to the next. The FFC... also remains constant from one reporting cycle to the next… however, the forecast is regularly adjusted at the package/contract level to align with the latest available information within the period. The LCP Monthly Progress Report… and the Construction Reports prepared in alignment with the Financial Loan Guarantee... report Budget vs. FFC data at a category and asset level along with detailed analysis of the FFC changes within the respective contracts*.

"However, as we previously" – pointed out in the March 201414 report that Mr. Harrington was providing to the executives, he noted in that report that "…*there was no allowance for any cost increase in the Astaldi contract because of delays and performance*." And that: "The March 2014 construction reports for MF/LTA and LIL show a total budget and final forecast cost of $6.53 billion."

If we – from what I recall – and let me double check – but that March report that was driven by Mr. Harrington at that time, I thought was at $7.5 billion, I have to double-check, though. Bear with me a second.

MR. LEARMONTH: Okay. So that may – that's something you'll check into, will you?

MR. SHAFFER: It's in – it's in the table.

MR. LEARMONTH: Yes, okay.

MR. SHAFFER: Yeah. It was $7.5 billion.

MR. LEARMONTH: Okay, so that's an error.

MR. SHAFFER: No, the construction reports are at $6.53 billion.

MR. LEARMONTH: Oh, okay. I see what you mean, yes. Okay, sorry –

MR. SHAFFER: Yeah –

MR. LEARMONTH: – about that.

MR. SHAFFER: – and Mr. Harrington is saying the cost, the final forecasted cost would be $7.5 billion.

MR. LEARMONTH: 7.5, yeah. Okay, thank you.

MR. SHAFFER: With regards to the Schedule Performance Index, Nalcor responded: "*The LCP Monthly Progress Report… and Integrated Progress Schedule…Monthly Schedule and Progress Analysis… are the primary monthly reporting deliverables that outline earned vs. planned progress*.

"We … reviewed the schedule milestones included in the LCP Monthly Progress Reports and IPS and noted that there were instances where the schedule remained under review. As an example, in July 2015, the LCP Monthly Progress Report noted that the first power date for MFG was under assessment. This milestone remained under assessment until the June 2016 LCP Monthly Progress Report, when the first power … was updated to August 2019."

We asked Mr. Harrington in an interview: Why it would have taken so long to update the schedule? And he stated: "*During that period, that's when we were negotiating… with Astaldi. Until such time that we negotiated a settlement, which was the settlement of*" – that should be 750 million, not 50 million.

MR. LEARMONTH: Seven hundred and fifty?

MR. SHAFFER: Seven hundred and fifty.

MR. LEARMONTH: Yeah.

MR. SHAFFER: Which was the settlement of 750 million "…*that was added on, they wouldn't tell you when it was going to be finished. You can't guess it. It has to be based on a contracted schedule*." And so, we took this to understand – we understand that this means that the scheduled milestone dates were not updated until contracted schedules had been negotiated."

MR. LEARMONTH: Did you – did you consider whether that statement from Mr. Harrington that you just quoted was reasonable, in your opinion?

MR. SHAFFER: I thought about it and it seems unreasonable.

MR. LEARMONTH: Okay.

MR. SHAFFER: And the reason why I say that is: you do this project to begin with and before anything, any construction happens, you have a schedule that's put into place. You then go along two years and you have actual data. I just didn't understand the schedule couldn't be updated based on what they now know, based on facts that were actually happening.

And let me you an example to maybe clarify. I think of this like a start-up business. A start-up business – client comes to me and says: Can you prepare some financial forecasts? Well, two years later, we have actual data. I can actually now prepare another set of financial forecasts also taking into account actual data.

I'm not sure why, why Mr. Harrington couldn't do it?

MR. LEARMONTH: Based – that is the information he had later was more reliable than the information that existed at sanction?

MR. SHAFFER: Well –

MR. LEARMONTH: Is that correct?

MR. SHAFFER: Well, it's certainly – it's – certainly two-years later, they certainly had data that could have prepared a schedule, I would think.

MR. LEARMONTH: Okay.

So – do I take from what you're saying that you did not find this explanation provided by Mr. Harrington to be reasonable?

MR. SHAFFER: Correct.

MR. LEARMONTH: All right.

Page 104, you speak of transmission vs. generation.

Can you take us through this part of your review?

MR. SHAFFER: Yes.

"In June 2016, after Stan Marshall became CEO, the project was"– bifurcated – "into two distinct work streams, Generation and Transmission…"–

MR. LEARMONTH: Bifurcated just means split into two, right?

MR. SHAFFER: Split, yeah – split in two.

MR. LEARMONTH: Or divided into two, yeah.

MR. SHAFFER: Yes.

"… Generation and Transmission, with individual leadership and project resources." In particular, Paul Harrington and Jason Kean had some concerns over it. Mr. Harrington wrote a memo to Mr. Marshall explaining his concerns with this change. And the letter states: "*I fully understand and support your desire to focus work in a different way. I do have concerns with the timing of implementing the organizational changes and suggest we do so in a more gradual manner.*"

And he explains that his primary concerns were as follows: Impact on the organization – *"…a number of key leaders in the Transmission and HVDC project management team will feel that this organization change will have a disruptive effect on the remaining work. I am concerned about loss of Project institutional knowledge and overall demoralization of the remaining team.*"

Increased risk for the LIL – it was in his opinion – well this is – I'm quoting now: "*In my opinion*" – meaning Mr. Harrington's – "*and based on my experiences in mega project execution, the LIL cost QRA P75 of $300M will be increased in the current QRA P75 schedule 7 months*" – was – *"similarly increased by disruptions and distractions to the Project teams*."

And then: Increased risk generation – "…f*or example, the negotiation with Astaldi, in an effort to seek a negotiated settlement could be severely compromised. If no negotiated settlement is achieved then the change-out and legal action will require all our project knowledge and resources*."

However, he also stated that: "*I fully agree with the Transmission/Generation split post project and feel that the emphasis needs to be placed on the readiness of the operating entity to take over the LIL assets…*"

MR. LEARMONTH: Okay. Did the bifurcation of the project into two parts have any effect on Mr. Harrington's responsibility for the project?

MR. SHAFFER: Yes. I believe he became leader of one aspect of that project. I believe it was the generation –

MR. LEARMONTH: So his responsibilities were changed, were they?

MR. SHAFFER: I believe they were.

MR. LEARMONTH: All right.

MR. SHAFFER: Other project team members "also expressed concern with the bifurcation... During an interview" we had "with Jason Kean, the former Deputy General Project Manager he explained that the fifth budget increase to $10.1 billion was a result of new leadership and bifurcation. He also noted that: *'...bifurcation was probably beneficial strengthening of focus, the approach taken by and the ideologies of those that led the bifurcation is not the best for the project in my personal opinion."*

"During an interview we had with Stan Marshall, the current Nalcor CEO, we asked whether the idea to split the transmission and generation had impacted the cost overruns at all:" – Mr. Marshall – "responded" – next page 105 – "*No, I think it was the key to our success.*" Further to this when asked whether the mandate change from being cost driven to just get it done, Stan Marshall explained that "… *people are looking at the actual out of pocket capital cost and not worried about time, and I said time is money."* He continued to explain, *"I tried to simplify it for everybody and said look you have a $10B project roughly 6.3 %, that means that financing costs for interest is a million dollars a day... if I'm going to say $1-2 million dollars a day and it's going to cost $100,000 more, it's money well spent*."

MR. LEARMONTH: Okay. Thank you.

Now, please read into the record your observations and findings on page 105?

MR. SHAFFER: "Observations and Findings. We reviewed the overall project management structure Nalcor developed and considered whether this structure was in accordance with best practice. We conclude the following:

"Nalcor has detailed and well documented policies and procedures governing their project management process.

"The core project management team, with the exception of Ron Power, did not have any hydro experience. On average they did have 14 years of mega-project experience, primarily oil and gas related. There were other individuals on the integrated team that had significant hydro experience, however these individuals had on average less than 4 years mega-project experience.

"Nalcor selected SNC as the EPCM contractor but expressed issues with SNC's performance in 2012 and ultimately decided to switch to an integrated project team approach in 2013. Both the EPCM and Integrated project team models are acceptable management frameworks.

"In 2016 Stan Marshall, Nalcor CEO split the project into two separate work streams (Generation and Transmission). Paul Harrington and other team members expressed concerns with the decision to bifurcate the project, as he felt it would contribute to cost increases. Mr. Marshall indicated that the bifurcation was to accelerate the completion and that his decision was an effort to save money overall in financing charges."

MR. LEARMONTH: Did you form any conclusion or opinion as to whether the bifurcation decision was helpful or harmful to the project?

MR. SHAFFER: No.

MR. LEARMONTH: No.

All right. Page 106 entitled: "Overall Procurement Strategy Developed by Nalcor." Can you give us the background of that view?

MR. SHAFFER: Yes. Part of the mandate was to look at the "…*overall procurement strategy developed by Nalcor for the project to subdivide the*" project – I'm sorry – "*Muskrat Falls Project into multiple construction packages followed industry best practices, and whether or not there was fair and competent consideration of risk transfer and retention in this strategy relative to other procurement models*..."

So, "Nalcor's overall procurement strategy is outlined in their Overarching Contracting Strategy" – that we talked about before. "This document considers factors such as risk, skills, resources and capabilities, contract type, obligations and interfaces. In preparing the strategy Nalcor conducted an analysis of the contracting environment to determine lessons learned and best practices. This was done by compiling data on multiple projects and other sources including hydro, transmission, and other mega projects."

And the information that was considered included the following: "Newfoundland and Labrador (and Atlantic Canada) megaproject execution lessons learned (Hibernia, Terra Nova, White Rose, Sable Energy, Voisey's Bay, etc.);

"Lessons learned from the highly successful development of Churchill Falls Generating Facility lead by Brinco under an EPCM arrangement with Acres Canada Bechtel;

"Hydro development project lessons learned from across Canada sourced from BC Hydro, Manitoba Hydro, Hydro Quebec, and Ontario Power Generation;

"Recent international hydro megaproject lessons learned from Iceland;

"Hydro industry trends in Canada through participation in the Canadian Electrical Utilities Project Management Network Group;

"Mega-project industry trends through the involvement of" – IPA – "Independent Project Analysis … and Westney Consulting Group;

"Lessons learned from various industry associations including AACE International and PMI;

"Insights from Nalcor's financial advisors for the Project, Pricewaterhouse Coopers … and strategic legal advisor, Fasken Martineau DuMoulin."

MR. LEARMONTH: Was that – that appears to be a fairly comprehensive review, do you agree?

MR. SHAFFER: I do agree.

MR. LEARMONTH: Yes, okay.

MR. SHAFFER: And then, "Based on the above analysis Nalcor identified the following considerations for the contracting strategy:" Wanted to ensure that the "contract size is manageable and does not exceed contractor capability, put interface risk in the correct place;

"Contractors need to stay within their expertise;

"Avoid one strategy fits all for the contracting packages as the contracting environment varies between the different scopes of work;

"Smaller packages work better;

"Commercial terms and conditions strongly in favour of the Owner will limit bidder competition and drive costs up;

"Megaprojects with large" EPCM "lump sum contracting schemes fail more often than non-lump sum schemes;

"Risk premiums tend to increase with" the "onerous local content requirements (e.g. man-hour targets, harsh environments/climate, concurrent large projects in the region, high potential for labour shortages;

"Risk premiums can be significantly reduced by the Owner assuming some of the risk; in particular those risks outside the contractor's control (i.e. strategic risk).

"Nalcor's Contracting Strategy notes that the main objectives of the contracting strategy were:" – to – "Achieve the required project quality; Optimize the project schedule; Minimize overall cost and schedule risk; Achieve optimum and appropriate risk allocation; Meeting benefits and First Nations obligations."

Next page.

MR. LEARMONTH: Yes, this is the – your report on the work package size.

MR. SHAFFER: Yes. "Nalcor subdivided the LCP into multiple work packages" – as we know. "We reviewed guidance from the Project Management Institute" – the PMBOK publication – which states, "*the process of subdividing project deliverables and project work into smaller, more manageable components. The key benefit of this process is that it provides a framework of what has to be delivered*."

This is one of the sections that we – that was the 2017 publication. We checked that wording for the 2013 publication, and it reads as follows, almost exactly the same thing: The process of subdividing project deliverables and project work into smaller, more manageable components. The key benefit of this process is that it provides a structured vision of what has to be delivered.

Basically – to me, saying basically the same thing.

MR. LEARMONTH: You referred to that yesterday, did you not?

MR. SHAFFER: I did. I –

MR. LEARMONTH: Yes, okay.

MR. SHAFFER: This is where it was at.

MR. LEARMONTH: Yes.

MR. SHAFFER: All right. So, "The size of the work packages used by Nalcor required further analysis. Nalcor's research indicated that '*Smaller packages work better*' however, in executing the LCP Nalcor selected a larger work package structure." And we looked at this and noted the following.

That, "Nalcor received input from SNC regarding the size of the work packages. The PMT indicated that SNC '*…maintained the view that … construction packages should be smaller (as was the case within Hydro Quebec)*.'

"We reviewed SNC's April 2013 Risk Review for Lower Churchill Project. It states: '*The project must come to the realization that the market response to these large bid packages is limited to a few major players. The pricing tendency is showing signs of being well above their original set budget…*' The report goes on to say: '*Restricted pool of major contractors capable of bidding on the very large packages developed for the LCP (already out for bids allowing for limited possibility to re-scope or develop new packages). Fewer bids could be submitted and at higher than original budgeted cost*.'"

We discussed this with Paul Lemay, the lead estimator for SNC. And what he indicated was that, "*…normally we have 2, 3 contractor but they have decided to give that to one contractor of course, you know…it drives the price up but you have less interference…when you have 3 contractor in the powerhouse and the intake, and you have to, if one is late, then the other one sue the other one because he is late and you never see the end…so that is why when you go with one contractor the advantage of doing that there is some disadvantage too, is you are taking a bigger risk. With the one guy, if this guy fails everything fails, you have to start all over again*."

MR. LEARMONTH: So that indicates there's pros and cons, would you say –

MR. SHAFFER: Yes.

MR. LEARMONTH: – to smaller – going with a number of – a larger number of smaller contractors, as opposed to large contractors?

MR. SHAFFER: Each one has its pros and cons.

MR. LEARMONTH: Yeah.

MR. SHAFFER: Yes.

We discussed this with Normand Bechard, the former director general of project, Lower Churchill, and he – in an interview – and he explained: "*…They were told by the lenders to reduce the number of risks they were taking…I was having discussion Jason* [Kean] *but also with Lance* [Clarke] *at the time…these guys are there to make money with interest, but you should be careful because if you go their direction you are going to pay a premium to transfer risk to contractor and that premium can be very high…*"

"Additionally, Nalcor's financial advisors PWC provided advice pertaining to package sizing and transfer of risk. PWC suggested that '*…the owner should design packages for tender to achieve appropriate risk transfer within a sensible scope that minimizes interfaces. The package scope and risk transfer should aim to be attractive to the relevant contracting market…*'

"The PMT noted that: '*…Nalcor carefully assessed this packaging approach…an increase* *in the number of contracting packages and construction interfaces would have to be supported by…the necessary management resources…*' The PMT also indicated" – to us – "that '*…contrary to SLI's … view, the financiers wished to see the opposite with a specific desire for larger packages, less interfaces and more risk transfer to credit-worthy contractors…*'"

We asked Derek Hennessey about this, and he concluded that: "*Nalcor also indicated a large contract strategy was stipulated as a preference of the three rating agencies that assessed the project. Assuming Nalcor's indication the ratings agencies preferred a large contracts strategy* [meaning the rating agencies required large packages]*, given the project needed to be financeable and there are other benefits to using larger construction packages, the decision to structure the project using larger construction packages seems reasonable*."

Williams' point of view was as follows, that: "'*Best practice on large projects in remote locations is to provide large work packages in order to limit risks associated with delays in contract completion, particularly scope on the critical path*.' Williams goes on to say: '*Larger work package sizes attract large-scale contractors and the expertise to complete complex projects*.'"

Break for water.

MR. LEARMONTH: So given all these points, including the wishes of the lenders, which are – which carry significant weight, it – am I correct in concluding that it was reasonable for Nalcor to proceed with the larger work packages.

MR. SHAFFER: I mean, if in fact the financials required it, I would say absolutely. What else were they going to do at that point?

MR. LEARMONTH: All right.

Now, on page 109, you consider Nalcor's procurement model.

MR. SHAFFER: Yes.

"As previously discussed in the" – other section, the – "Overall Project Management section of this report. Nalcor considered three project delivery options. Their financial consultant PWC reported on Procurement Issues in 2008 and noted that: '*…the adoption of a highly conservative, lowest-common-denominator approach, namely the use of a single fixed-price turnkey lump sum EPC contract…would render the project uneconomic. The number of companies willing to bid for such a project is clearly limited, and the number who would be credible in such a role even lower.*' At the time of sanction Nalcor had selected an EPCM model. As noted earlier in this report" – here – "this scope of work was awarded to SNC. This contract contained a cost reimbursable portion and a fixed fee component tied to the completion of defined stages of service."

For this section – I'm on the next page, 110. Regarding our observations and findings: "We reviewed the overall procurement strategy developed by Nalcor to subdivide the project into multiple construction packages followed industry best practices, and whether or not there was fair and competent consideration of risk transfer and retention in this strategy relative to other procurement models and" – we – "have concluded the following:"

That, "Nalcor subdivided the LCP into multiple work packages. We reviewed guidance from the Project Management Institute … as published in the A Guide to the Project Management Body of Knowledge ('PMBOK'). PMBOK states '*…the process of subdividing project deliverables and project work into smaller, more manageable components. The key benefit of this process is that it provides a framework of what has to be delivered.*'" And "Therefore, it is our conclusion that Nalcor's decision to subdivide the Project into multiple construction packages followed industry best practices."

Further, "Nalcor selected a procurement strategy to use large packages, less interfaces and more risk transfer to contractors. This decision was contrary to their research which indicated that smaller work packages work better and also contrary to SNC's opinion that the construction packages should be smaller. While this decision was not in accordance with the information Nalcor had available to them, Nalcor has indicated that financiers preferred larger work packages. Accordingly, Nalcor structured larger work packages."

MR. LEARMONTH: Okay. Thank you.

Now, on page 111, you deal with Risk Assessments. Can you take us through that part of your report, please?

MR. SHAFFER: Yes.

This part of the mandate was to determine whether "*any risk assessments, financial or otherwise, were conducted in respect of the Muskrat Falls Project, including any assessments prepared externally and whether: … the assessments were conducted in accordance with best practice*," whether "*Nalcor took possession of the reports, including the method by which Nalcor took possession*," that "*Nalcor took appropriate measures to mitigate the risks identified, and Nalcor made the government aware of the reports and assessments* …"

There's a background section. "Nalcor began considering the impact of risk on the" LCP project "early in their gateway process through the LCP – Project Execution Risk & Uncertainty Management Guidelines. This document defines Nalcor's project risk management goal as "*…identify project risks … and develop strategies which either significantly reduce them*" – it says of but that word should be or – "*of take steps to avoid them altogether...*"

"Furthermore, Nalcor describes the project risk management program as ' … *a mechanism by which the Project Management Team can: Realistically set reasonable cost and schedule contingencies; Estimate the probability of cost overruns and schedule delays; Estimate the probability that the projected cost and schedule targets will be achieved; Understand the accuracy of the targeted cost estimate or schedule, and Ensure that the project team identifies both project risks and opportunities, and implements a plan to mitigate risks and realize opportunities*.'"

And the following page, 112. "Nalcor lays out a five phase project risk management program." And this phased approach is summarized by the diagram below and – that's actually our diagram, we prepared it; though it'd be easier for everybody – basically outlining the five phases. "Note that Phases 1-3 occurred prior to sanction, while Phases 4 and 5 relate to the Construction Phase of the project. Some background information on Phases" 1 through 3 we've included in the "report as it is necessary to consider prior to Phases 4 and 5."

So Phase 1 is Risk Management Planning. The first phase of "their Project Risk Management Program involved developing the risk management philosophy, policy, staffing the function, defining risk types, defining the risk management approach, and defining reporting requirements.

"The risk management planning defines a risk management philosophy outlining the objectives of Nalcor's risk management program. The philosophy was supported in Nalcor's project risk policy which outlines a commitment to" – and this is quotes – '*...planning and executing the Lower Churchill Project in such a way as to minimize the potential negative effects of risk and to maximize opportunities...*'"

So, after the risk management planning, you go to Phase 2, which is the Risk Identification. "Nalcor discusses their risk management process as determining which risks might affect the project's desired outcome. Their guidelines also address risk identification as an on-going and iterative process which should be updated throughout the life of the project. To identify and quantify project risks, Nalcor held risk workshops."

Phase 3 is the Risk Analysis. "Nalcor indicated that, '*The purpose of this phase of the Project Risk Management Program is to evaluate the risks and opportunities identified in terms of both their potential likelihood of occurrence (probability) and their severity level or impact/ consequence..."*

Next page, please?

MR. LEARMONTH: 113?

MR. SHAFFER: Yes.

We know that Nalcor held risk workshops for the DG3 risk analysis on May 23 and 24. "Day one of the workshop focused on tactical risks and day two of the workshop discussed key risks. We reviewed the list of attendees for the workshops and noted that attendees from Nalcor, SNC and Westney attended day one of the workshop but SNC did not attend day two of the workshop. We also noted that of the six individuals with over 30 years of hydro experience who worked on the LCP during 2012, the following attended the workshops: Bob Barnes" he was Ready for Operations Manager. He attended the MFG portion on day one; John Mulcahy, Hydroelectric Construction Specialist attended the MFG and transmission portions on day one and Raj Kaushik, Electrical Lead attended the transmission portion on day one.

Now, I want people to note that these are folks with 30 years. What I don't know is I don't know if anybody who had less than 30 years hydro experience attended those workshops. I just don't know off the top of my head. There could've been others.

MR. LEARMONTH: When you say hydro experience, I mean, do you mean hydro construction experience, or just simply working at Hydro?

MR. SHAFFER: It's –

MR. LEARMONTH: Or both?

MR. SHAFFER: Well, I guess it's whatever – how it was classified by Mr. Harrington.

MR. LEARMONTH: Okay. But you see the point. Someone could work at Hydro in, you know, in a non-construction capacity and have no experience in hydroelectric construction – construction of hydroelectric projects, yet, perhaps could still be said to have, you know, 20 or 30 years of hydro experience. Do you see my point?

MR. SHAFFER: Well, I guess the question is – I think what you're saying is that what did these folks that Mr. Harrington –

MR. LEARMONTH: What did they do?

MR. SHAFFER: – what did they actually do on the prior hydro projects?

MR. LEARMONTH: Yes.

MR. SHAFFER: I think that's what you're trying to ask.

MR. LEARMONTH: Yes.

And before – one other point, you mentioned that SNC attended day one of the workshop on May 23, 2012 but did not attend the second day on May 24. Am I correct that May 23 there was discussion of the tactical risks and May 24 involved a discussion of the strategic risks?

MR. SHAFFER: They called it – they actually titled it key risk.

MR. LEARMONTH: Yeah.

MR. SHAFFER: But Keith Dodson, when we talked to him, thought that strategic risks were discussed on day two. And in our interviews when we mentioned that in day two that was – there was talk of strategic risk, nobody corrected us, so we assumed day two was strategic risk based on that.

MR. LEARMONTH: Did you ever receive an explanation as to why representatives of SNC did not attend the May 24 session where strategic risks were discussed?

MR. SHAFFER: I did. In an interview with Mr. Harrington, I believe he indicated that the reason why is that they were one of the main – one of their main contractors, at that time, and he didn't want them knowing what the potential exposure would be because of the – they had a contract with them.

MR. LEARMONTH: But they were part of the integrated team, weren't they?

MR. SHAFFER: Well, at this time, this was May of 2012, they were the EPCM, I think, at that time. Remember the official announcement –

MR. LEARMONTH: Yes.

MR. SHAFFER: – didn't occur – they were having problems with SNC at the time.

MR. LEARMONTH: Okay.

MR. SHAFFER: But it wasn't a – you know, Mr. Bennett made that announcement March of 2013.

MR. LEARMONTH: Yeah.

MR. SHAFFER: So "None of the individuals with significant hydro experience attended Day 2 of the workshops when the key strategic risks were discussed. To our knowledge, Ron Power, was the only team member with hydro experience who attended Day 2 of the workshop, and he was not present on Day 1."

We spoke with Mr. Westney, and we were told by Mr. Westney that – who is the founding partner of Westney Consulting Group – that on June 4 and 5, 2012, Jason Kean and Paul Harrington "met with Keith Dodson at Westney Consulting's office in Houston to review and finalize the risk ranges for both the tactical and strategic risk that went into the Monte Carlo simulation performed by Westney. We interviewed Keith Dodson from Westney … on November 16, 2018. During that interview he highlighted the following" for us.

First – these are him talking, Mr. Dodson: "*Our recommendation on P-value is always at least 75%, and in this case I was saying P90 because it was likely to end up like where this one has, with some type of change in government and government investigation later down the road. I've been in a lot of these public projects and it almost always happens.*"

He also went on and said that: "*They wanted us to say picking P50 was a good thing, and we never would say it.*"

MR. LEARMONTH: Okay, so you're – Mr. Dodson is saying that the – they recommended P50, or even as high as P90, for the project. And did Nalcor accept this advice?

MR. SHAFFER: Well, no, they didn't. I mean he – Mr. Dodson was saying P75 and he was saying P90 in this case. And, I mean, there was a range, but as we know, the budget was set at – for the tactical and strategic – at P50.

MR. LEARMONTH: P50, okay.

MR. SHAFFER: Except for the schedule, which was, as we know, between P1 and P3.

MR. LEARMONTH: Right. Okay, continue on.

MR. SHAFFER: Yes.

"When asked about the benchmarking used in developing the risk ranges, Mr. Dodson explained: *Basically the benchmarks were the two Hydro Quebec projects* [Eastmain 1 and Eastmain 1A located in James Bay], *but they were quite different dams, they weren't structural concrete dams.*"

He also said that: "*No one wanted to move the estimate. I'm sure Nalcor wanted to believe it, based on discussions and SLI was very firm that they could do it, so they didn't range as much…and that same confidence carried over into the strategic risk discussion where we would have a political risk and we would have had a much higher productivity risk, and they were $2 billion higher. But we don't make decisions, we just make our view of the world.*"

And when we asked Mr. Dodson about – when does mitigation actually come out of the contingency, he said it's totally up to the client. He said he would recommend to the – "*… I would recommend to the client…don't count it until you've done it. But it's all over the map in terms of what they do, particularly private clients. Now, this client had more exposure because it was semi-public.*"

MR. LEARMONTH: Okay.

Just to clarify something that you – a quotation from Mr. Dodson that appears at the bottom of page 113. He says – second last paragraph: "*They wanted us to say picking P50 was a good thing, and we never would say it.*"

Do you know who the "they" he is referring to are?

MR. SHAFFER: I took that to mean Mr. Harrington and Mr. Kean.

MR. LEARMONTH: Yeah, okay.

Well Mr. Dodson will be testifying I think this coming Monday, so we'll get that –

MR. SHAFFER: Okay.

MR. LEARMONTH: – confirmed. Okay, please return to page 114, line 12, risk response planning.

MR. SHAFFER: Phase 4 is risk response planning.

And "Nalcor's documentation indicates that their process in planning a response to risk contained four strategies; avoidance, mitigation, transference and acceptance.

"The risk registers populated by the project team were updated dependent on the risk strategy chosen and an action plan was developed and assigned to a risk owner. The risk owner developed risk response plans based on the risk mitigation strategy chosen.

"We asked Williams to review the forecasting and budget used on the LCP. They noted the following: *Best practice budget reporting includes contingency costs. It appears from documents reviewed that contingency costs were not included in the reported budget when a mitigation strategy was identified to address the risk. Contingency costs are included in budgets until the scope of work associated with the contingency amount is completed and the risk is eliminated.*

"We reviewed the Key Risk Status Report that was updated during the May 2012 workshop that was held with Westney Consulting as well as the Strategic Risk Frames that coincide with the strategic risks that were included in the management reserve. Each of these strategic risk frames outline the mitigation, avoidance, acceptance or transference plan. Therefore, Nalcor did have mitigation plans in place for the identified strategic risks.

"In addition to the strategic risks, we reviewed the Base Estimate Tactical-Risk Exposure Input. This document contains a summary of the risk ranges in dollars (i.e. best and worst case scenarios) for each of the tactical risks. These ranges were the inputs into the Monte Carlo simulation that was performed by Westney Consulting.

"One of the key …" – as we all know – "One of the key risks that materialized throughout the project was the risk of schedule delay. Prior to sanction, the Decision Gate 3 Project Risk and Schedule Risk Analysis Report noted that, *the current schedule is aggressive, given the northern location and the sustained concrete placement production rates required* and *potential for an 11 to 24 month delay to full power…*We asked Nalcor to provide a summary of the mitigation measures put in plan to address this risk at sanction and how the costs associated was factored into the sanction budget for the project. In response, Nalcor stated …" the following.

"*NAL0020664* [DG3 Project Risk and Schedule Risk Analysis Report] *outlines and discusses numerous activities that were identified and mitigation measures that were actioned to address the various risks. With specific reference to the concrete placement production rates required, the assumptions included in the DG3 estimate were confirmed by SNC-Lavalin as achievable; however, SNC-Lavalin reinforced the project team's concern regarding the risk of sustaining the recorded production levels (reference p.235-236 of the PDF). This risk was included in the management reserve time-risk analysis and contributed to the potential 11-21 month delay.*"

"While it's noted that SNC confirmed that the assumptions were achievable … in the SNC risk assessment report ..." – which we'll discuss in the next chapter of this – or the next section of the report – as – they have a risk there called "*Concrete works slippage from baseline schedule* with a maximum consequence of $350 million and a probable consequence of $126 million. Westney's report which was prepared in December of 2017 in response to the SNC Risk Assessment Report, compared the risks identified by SNC to Nalcor's risk." In other words, Nalcor hires Westney to look at the SNC risk assessment report and to get their take on it.

And note – let me start over that sentence: "Westney's report …" – I'm on line 20 – "Westney's report which was prepared in December of 2017 in response to the SNC Risk

Assessment Report, compared the risk identified by SNC to Nalcor's risk and noted that this risk …" – meaning concrete work slippage from baseline schedule – "… was addressed through Nalcor's risk titled *Availability of experienced hydro contractors* which is included in Nalcor's Key Risk Status Report."

So – next page please – so, what they were doing – what Westney was doing is looking at the SNC report and then they prepare their report, and for that particular risk that was – that they identified in the SNC report, they would note what risk number it was on the Nalcor registers to see if Nalcor addressed that risk.

So, this particular one, the concrete work slippage from baseline schedule was known as risk KR20, or key risk 20. And when you look at KR20 – when you look at the strategic risk frame, which is – all it is, is a document that says here's risk number 20: Availability of experienced hydro contractors. And this document is – this chart outlines what the document said, basically, okay?

So the way Westney – what I didn't understand about that particular aspect is, I wasn't sure how concrete work slippage from the baseline schedule that was due to weather – because of the northern location and the sustained concrete placement production – how it would be impacted by the availability of experienced hydro contractors, but you still have to deal with the weather and the aggressive schedule.

But anyways, that's what Westney did and that's what they came up with, that it was addressed. In noting KR-20, one of the things that was indicated – and it's in the far right-hand column – that their "… *key risk exposure remains construction labour productivity*." So that was noted on this particular risk frame, KR-20. Nalcor thought the exposure – that their key exposure remains construction labour productivity.

So, we went further into the risk frames to see where was labour productivity being addressed by – maybe by different risk frame. And we came across key risk 24 – it's on the following page.

MR. LEARMONTH: That's on page 116?

MR. SHAFFER: One seventeen.

MR. LEARMONTH: One seventeen, sorry.

MR. SHAFFER: Could you – page up a little bit more please?

That's – page down. You're good. And if you can make it just a tad smaller for me please?

Okay, perfect.

That key risk 24, that's titled Availability and retention of skilled construction labour. And that management strategy was to mitigate the exposure by developing a construction schedule based upon achievable labour productivities.

So, we looked at that, and as concluded on lines 6 and 7, and the line 1 on page 118, that: "…Nalcor's mitigation plan for this risk stated that they would develop a construction schedule based upon achievable labour productivities. However, at this time Nalcor was aware that there was a 3% chance of achieving first power, meaning there was a 97% chance that the construction schedule would not be achievable. Therefore, Nalcor's mitigation plan to offset this risk was not supported by the information they had available at the time. Furthermore, this risk immediately began to materialize with Astaldi's slow mobilization in early 2014."

The next phase is Risk Monitoring and Control. And: "As noted, in Phase 2 of the Project Execution Risk & Uncertainty Management Guidelines addresses risk identification as an on-going and iterative process which should be updated throughout the life of the project. To our knowledge" – meaning GT's knowledge – "once the risks began to materialize, there were no further steps to quantify the impact and adjust the contingency or revise the mitigation plans." Meaning no QRAs were done between 2012 and the first quarter of 2016 that we could tell.

MR. LEARMONTH: Yeah, did you ever ask for an explanation as to why that was the case?

MR. SHAFFER: I don't recall. I don't remember.

MR. LEARMONTH: Okay, okay.

MR. SHAFFER: We know in 2007, Westney was engaged by Nalcor to provide risk management expertise for this project, and that "Westney was involved in a number of the engagements to support Nalcor's team in their project risk assessment approach including … Quantitative Risk Assessments … And the QRAs that Westney completed from 2007 to financial close are summarized in the timeline …."

You can see that they did one in 2008 as part of DG2A, they did one in 2010 as part of DG2, they did one in 2012 as part of DG3 and then, there's nothing that was done until the first quarter of 2016. So basically, a four-year gap while certain things were happening within the project that we'll talk about. And finally, in 2017, they did a QRA – did a spring update.

Now this information, this chart came from the project management team. That was – the source of this chart was from the project management team's binders that we were given.

Next page, please.

MR. LEARMONTH: Yes.

MR. SHAFFER: So, we know that no QRA was done between 2012 and 2016, but during that time period there were a number of risks that were materializing that were – that included but not limited to:

"A delay in mobilization due to … delayed environmental assessment release;

"Bids exceeding the base estimate;

"Astaldi's slow mobilization; and

"Astaldi's less than expected productivity rates of concrete placement.

"Throughout 2014, Astaldi's slow mobilization began to impact the schedule and the incompletion of the integrated cover system" – which – "affected productivity during the winter of 2015. In July 2015, the construction reports indicated the majority of the project milestones were under review."

We asked Nalcor whether there were any risk assessments completed internally between 2012 and 2016 QRAs and they responded that: "*During that time frame [2012 to 2016] LCP did not complete any quantitative modelling of risk (like that completed by Westney); however, as per the Project Risk Management Plan LCP identified*" – the – "*LCP identified, quantified and monitored tactical and strategic risks on an on-going basis. This is documented in the LCP Monthly Progress Reports*.

"As previously noted, while" – the – "risk registers were maintained, the overall final forecast cost and schedule did not reflect costs or schedule changes until they were committed. EY commented on" – this – "on the risk assessment process in their 2016 report and recommended that '*the project should revise it's planning and forecasting process to explicitly includes the regular reporting of a fully risk-adjusted final forecast of cost and schedule*.'"

We're also noting, though, that during this whole process – "…that during the course of the project" – that Nalcor did increase – "the contingency several times for an approximate total of $540 million."

MR. LEARMONTH: Okay.

Your observations and findings

MR. SHAFFER: "When considering whether any risk assessments, financial or otherwise, conducted in respect of the Muskrat Falls Project, including any assessments prepared externally" – we – "observed and found the following:"

MR. LEARMONTH: Do you wanna break?

MR. SHAFFER: "Nalcor's project risk management policies and procedures were well defined and documented. The risk philosophy was communicated throughout the project to the project management team and to Nalcor Executives.

"From Sanction in 2012 to 2016, when project risks were materializing, there was no formal QRA process completed.

"We have noted that Nalcor did increase the contingency several times during the project for an approximate amount of $540 million.

"Nalcor assumed mitigation would occur to reduce the exposure of a specific risk prior to actual mitigation of that risk.

"Nalcor's strategy to mitigate the risk of 'Availability and retention of skilled construction labour' was to develop a construction schedule based upon 'achievable labour productivity.' According to Westney, Nalcor's own risk advisor, there was a 3% chance of Nalcor achieving that schedule."

MR. LEARMONTH: All right.

Would this be a good time to take the afternoon break? I'm just about to go into the next section.

THE COMMISSIONER: Okay.

So we'll break for 10 minutes then.

CLERK: All rise.

Recess

MR. LEARMONTH: Thank you.

Now, we'll deal with the SNC-Lavalin risk assessment report, starting on page 129 of your report.

Can you just give us the background of this issue?

MR. SHAFFER: Well, the background is SNC does this risk assessment report back in April of 2013, and the main question was, at that time: Did anybody at Nalcor receive the report? Or – and that's really the main issue.

We're going to get into what our findings here were, but that seemed to have been the main issue, whether or not Nalcor took possession of the report, including the method by which they took possession which is part of the mandate.

MR. LEARMONTH: Okay.

MR. SHAFFER: So, in June 2017, a risk assessment report on Muskrat Falls indicated that SNC-Lavalin had dated April 2013 – the SNC risk report – was publicly released that predicted a potential project risk exposure of $2.4 billion. At the time the report was released it was unclear whether anyone from Nalcor – including the then CEO Ed Martin – had received or was aware of the contents of the SNC risk report in 2013, and if the risks identified by SNC were considered by Nalcor.

We interviewed a number of people – SNC folks and Nalcor individuals and – including Mr. Martin, and "During interviews with SNC employees, we concluded the SNC Risk Report was an internal SNC document prepared to address concerns brought forward by SNC employees. The report was titled '*Confidential for SNC-Lavalin Internal Use Only*.' During our review we did not" – find – "did not identify any evidence which would conclude that Nalcor received the SNC Risk Report." However, what we "have concluded was that Nalcor was aware the report existed in 2013 and chose not to receive it."

MR. LEARMONTH: Okay. Did you form any conclusion as to whether anyone at Nalcor knew what was in the report?

MR. SHAFFER: Yeah, let me get into it and –

MR. LEARMONTH: Okay.

MR. SHAFFER: – as we get into this, yes.

Several members of the SNC's management team noted that a meeting occurred between SNC's CEO and Nalcor's CEO in St. John's, NL during April 2013. The Former SNC CEO noted that while he does not recall physically giving the report to Nalcor CEO, the risks outlined in the report were discussed."

MR. LEARMONTH: By the way, the CEO you're referring to is Bob Card, are you?

MR. SHAFFER: The former, yeah, the former SNC CEO is –

MR. LEARMONTH: Yeah.

MR. SHAFFER: – Bob Card.

MR. LEARMONTH: And his interview is found at the beginning on page 124 of your report. Is that right?

MR. SHAFFER: Yes.

MR. LEARMONTH: Okay.

Okay, just continue on, I interrupted you there.

MR. SHAFFER: "In addition to the meeting in April 2013, the Director of Risk Engineering Services" for "SNC" –that would be J. D. Tremblay – "recalls a meeting with Paul Harrington, Nalcor's Project Director in May 2013. Notes from this meeting indicated that they had discussed the SNC Risk Report.

"*The following*" – I'm about to talk about – "'*is a summary of responses received from interviewees in chronological order. Note that the responses from the interviewees are direct quotes which have been indented and italicized. Questions and/or topics asked by Grant Thornton … have been added in where necessary to provide context*."

So, I interviewed Mr. Tremblay, J. D. Tremblay, Jean-Daniel Tremblay, the risk coordinator, interface manager from June 2012 to November 2013. I interviewed him on April 10, 2018.

Question: "**When was the first time you've seen this [SNC Risk Report]?**"

He says: "*About that time, about April 2013*."

Question: "**How did you see it, who showed it to you, how did it come about that you saw it?**"

Answer: "*History of this with respect to my knowledge of it, is Normand Bechard came to see me at – I don't remember when, but prior to this, and told me that we had risk assessment, there was going to be a risk assessment report that would be prepared by SNC alone. I was involved in a workshop that I participated in, was in Newfoundland. There were some SNC personnel in Montreal and we did a Skype workshop*."

Question: "**Do you know indirectly or directly whether or not Bob Card met with Ed Martin, the CEO of Nalcor about it?**"

Answer: "*There was a meeting later at the end of May where Normand Bechard and myself were called into Paul Harrington's office and from my recollection is that Bob Card met with Ed Martin and I'm not sure about this, but what seems to have happened is that Bob Card mentioned that we did a risk report on the project, I don't know what was discussed and Paul Harrington asked us (Normand and myself) what's the deal with this report? And there was some concern that it was sensitive information and we don't want to, we shouldn't do anything with this report. It's sensitive and we have other people looking into the risk, and*" – when – "*did you get your information to do this report?*'"

MR. LEARMONTH: And where did you get it, it says.

MR. SHAFFER: I'm sorry, yes. I'm getting a little bit bleary eyed here – and where did you get your information to do this report?

Question: "**Did Paul Harrington tell you that directly?**"

Answer: "*Yes, he was concerned that we had done this report*."

Question: "**Did he say why he was concerned that it was done without his knowledge?**"

Answer: "*Because it was sensitive*."

I asked: **In what way**?

"*Because it could be available and because this is a public project.*

Would be a concern that this would become public."

Question: "**There was no report in hand?**"

He says: "*I don't know, I don't remember if Paul Harrington had the report. Maybe he had, I don't know, I don't remember. But topic was this report, I think that's clear*."

I asked: "**So it's not a very nice meeting, it's pretty unpleasant. What transpired regarding report or conversation after that meeting? What did you do next?**"

His answer: "*... Nothing really. I mean I tried to carry on business as usual and carry on with what I was doing on a day to day basis but it may have had something to do with the fact I was demobilized in November, I don't know*."

On May 8, 2018, we interviewed Normand Bechard, the project manager of SNC, at that time – well, no longer.

Question: "**Why did you request the memo to be written**?" – meaning the report.

He says: "*Long before the exercise of doing the risk review there was a lot of things going on and one of those main things going on is SNC was pushed aside of any decision on any strategy. So in fact, we're still having an EPCM Contract because they were refusing to amend it. But, we were a body shop and with an SNC manager like me got the obligation to do a corporate risk review. So I was looking at what was going on and said, jeeze, some day for some reason if this project starts slipping, there is a big risk for SNC to get its reputation damaged. So I discussed with my boss at the time, Bernard Garner...*

"*So we did the risk review and Michel issued a report with the conclusion. I handed the report to my boss, Bernard Garner at the time, Scott Thon, and Bob Card (SNC CEO).*"

I asked: "**Did you hand it to Bob Card?**"

Normand says: "*Personally, yes myself ...*"

I ask: "**You were there with him?**"

"*Yeah, I had been driving him all across St. John's*."

I asked: "**Why was he there?**" Meaning Bob Card.

"*Because the Lower Churchill was one of the most important projects for SNC. Bob was himself someone which was involved in big projects and he was liking being involved in big projects so he came to St. John's. I did him a briefing of the project, the scope, the contract, what was going on. The issue that we were having with the client. I hand the risk report, he look at it, he was having a planned meeting with Ed Martin when he was in St. John's ... to discuss CEO to CEO which is normal, like CEO to CEO the organized meeting to discuss. Bob brought the document with him,"* – meaning the SNC Risk Report – "*to meet Ed. I brought myself, Bob to the Columbus Drive office"*– which was Nalcor's office – "*with my car.... I don't know what"– was, it's supposed to be what was on the agenda* – "*I don't know what was the agenda of the meeting, the only thing I know is Bob's intent was to offer Ed Martin the copy that I hand to him ... I got back there, Bob got in the car and the only thing he told me, he say Ed refused to have the document*."

I asked: "**What happened after that?**"

He says: "*Nothing. After that, we were having a team meeting. Bob was meeting all SNC employees in a room we rent in St. John's so we spent most if the afternoon with the Lower Churchill SNC team and then flew back to Montreal. Then a few days later I knew that I was having to come back about that report. For sure Ed Martin will have talked to his direct report that we did that. I was not remembering that meeting with Paul Harrington but I had a meeting with Paul Harrington where probably asked me why we did that. I told him, first if all you didn't pay for that report, we did that on our own money and I did that because corporately, I got the obligation to warn my organization about anything that may affect them – this was my duty*."

I asked: "**Was anyone in the meeting with you and Paul Harrington?**"

He answered, "*JD*," meaning Jean-Daniel Tremblay.

I asked, "**Did Paul Harrington say other people at Nalcor were aware?**"

He said: "*Jason Kean was aware. I offered Jason to give him a copy. Because Jason was the risk manager. He said no, I don't want it*."

On May 17, we interviewed Bob Card.

And the question was, "**Maybe you can tell us about your involvement with LCP**."

Mr. Card says: "*Project was a highlight for SNC Lavalin at the time ... Scott Thon had, shortly after the first year, become interim president of Power and this became a major focus for him. Somewhere in the January-ish time frame we set up a meeting in April with Nalcor executives to have a face to face discussion about our concerns about the project which then occurred.*"

And I asked: "**That meeting took place in April 2013?**"

He says, "*Yes*."

I said: "**Can you tell us who attended that meeting?**"

He said: "*Ed Martin was my counterpart focus there. So Gilbert Bennett was there, what I'm reading off of I don't have access to my former SNC archives but I do have my contacts and put in my contacts I kept track of who was at that meeting. Gilbert Bennett was there, Lance Clarke was there, and Paul Harrington was there. I can't, I can't say that all the three were there with Ed at every part of it. The meeting involved a dinner, I believe the night before. I'm not sure if all three were there and then there was a meeting in Ed's office the next day*."

I asked: "**Gilbert Bennett, Paul Harrington and Lance Clarke?"**

"*Yeah*" – was his answer.

"**Who from SNC besides yourself?**"

He says: "*well there was Scott Thon there and Normand was*" – there – "*could have been there for some of it. I know one of the things that Scott and I were trying to make sure is how they felt about our project manager Normand. They said things were good, they liked him. But I can't specifically recall what parts of the meeting he was, Normand Bechard, he was included in and what parts he wasn't.*"

I ask, "**What else was discussed?**"

Mr. Card says: "*Our principal concern was over the success of the project... our key client was really upset, so the last thing we wanted was both an upset client and a failed project at the same time. It became clear to us that Nalcor's approach was rapidly evolving... into a self-perform mode. In my experience in many multi-billion dollar projects that – while it's not always successful to have a contractor be the program manager, it is rarely successful for an owner to be the program manager*" – and – "*that was red light number one for me. The way they were approaching... their contracting in general and oversight on the project was a concern for us...We discussed our concern over the risk posture with Ed and the team…. Ed and his team left the impression of strong comfort in their approach and capability to deliver the project as then advertised I think at $6 billion... They were quite confident they could pull that off*."

My question: "**In terms of the April 2013 SNC Risk Report – when would that have been discussed?**"

Mr. Card says: "*The contents, there was not a time in my recollection where a report was laid on the table and we said now, chapter one, chapter two, chapter three. The discussion was the general perception if risk around the project, the approach to managing the contractors, the labour issues. The issues in the risk report would have been reviewed throughout that whole process*."

I ask: "**In terms of the issues that were discussed did you indicate in that meeting that you had a report?**"

He – Mr. Card says: "*I can't recall exactly the written materials that were discussed in the meeting. But I can recall various subjects in the risk report having been discussed.*"

And I ask: "**And that was discussed with the four from Nalcor?**"

Yes – and his answer was: "*Yes, most likely. I mean, again, one may have stepped out or something - but yes that would have been the plan.*"

I ask: "**With the exception of stepping out of the room they would have been there and you**

would have been talking about what was contained in the report?"

He answers: "*Yes – but my goal was not to make sure I went down every point if the report because I had my own views. See the report didn't really feel as I recall and the management, what I call the 50,000ft level ... of the project I – it dealt more with specific risk. I was also concerned about the overall management approach if the project. The role of the owner verses the role of project managers verses the role of contractors. I had in my own mind what I thought were the key risks which dovetailed with the other risks. But it would not have limited my conversation to that report. Or*" – it – "*wouldn't be my style in the meeting to whip out*" – the – "*report and go down here's point 1, point 2, point 3*."

I ask: "**Did you ever say there was another 2.4B in cost ... here?**"

He said: "*I can't for sure say that I said that. At the minimum we would have said we think it would be extraordinarily difficult to deliver this with the promised budget and schedule with the current approach. In fact, it would be difficult even if the approach was changed to something that I would be more comfortable with in my experience with*" – such – "*large project management*."

My question: "**They have indicated that they never received the report?**"

And Mr. Card said: "*Yeah and I don't know if there is*" – was – "*a specific transmittal that clarifies they got it. But to me, it's somewhat irrelevant whether they saw it or not because the issues were clearly discussed at that meeting and by the impression I got from my ongoing dialog with Scott Thon and others is that the issues were being discussed frequently*."

I asked: "**In April for the dinner meeting" – I'm sorry. "In April for the dinner and meeting was this report already written?**"

Mr. Card said: "*I believe so. For sure the issues in the report were already understood and were part of our discussion framework at the meeting*."

So, I asked: "**So you don't remember handing Ed the report and him refusing to take it from you?**"

Mr. Card says: "*No, I couldn't imagine Ed having refused to take it. We weren't having – the relationship while we disagreed, I would classify as cordial and adult-like. It would be for me to conceive me handing Ed anything and him saying I don't want that*."

I ask: "**Was the report given to Ed or anyone either electronically or via courier?**"

His answer was: "*You know, I don't know – the most likely person who would have delivered it would've been Norman or Scott in my view. It would be rare for the CEO to send this report to the CEO of a client unless there was something horribly missed in the organization somewhere. So I don't recall doing that*."

So, now, we talk to Scott Thon on June 20, 2018.

Question: **"Can we speak about the April 2013 – SNC Risk Report – can you tell me why that was written**?"

His answer is: "*I would have attended one CEO meeting between Bob Card and Ed Martin and others that we had in St. John's, near the end of April 2013 … A number of concerns were being raised by my team (SNC) as I entered. So I had heard customers perspective and now I was hearing from my team about their inability to get information to properly*" – address – "*risks. And of course there was going to be less and less data available to SNC-Lavalin as it moved into a services contract. In that moment we decided to do, with what information SNC-Lavalin had, to do a review of risks because the view that I was getting from the team was the risk was more qualitative in nature and less quantitative in nature*."

Question: "**Was the report ever given to Nalcor**?"

Answer: "*I just cannot remember. I remember reviewing it a number of times, I remember signing it off. I don't recall that I gave it directly to them. It may have been given by my team to them. It was certainly our intention to* *communicate with them those risks. I*" can "*definitely remember whether we gave it to them*." "*I can't*" – I'm sorry – "*I can't definitely remember whether we gave it to them directly or not. But certainly in the quarterly meetings we were having, we spoke to the risks and our concerns around getting controls on those risks.*

"In the CEO meeting between Bob Card, myself, Ed Martin and a few other folks, we certainly did express the concerns of the risks that are in that report."

Question: "**Was the content of the report shared with Nalcor?**"

Answer: "*I can't remember whether we gave it to them or not. We certainly did on a number of occasions, walk through the key areas of the report and our concerns around the risk, yes. We did go through that in a number of meetings. As I recall, in the CEO meeting we talked about those risks and I think both the teams shared the concerns around the risk. I think it was more about what actions were being taken upon it or not*."

Question: "**The public SNC report – you didn't actually sign that report?**"

He says: "*Right … I'm not sure. That's why it is a question for me about whether we gave it or not. I definitely reviewed the report. I believe I signed it at the end of the day. I don't know why there wasn't a signature on it. That's what makes me wonder whether we actually finalized it and gave it to them or not. Regardless of whether or not I signed it, I did review it*."

Question: "**Would that report have been revised subsequent to the meeting with Ed Martin?**"

His answer was: "*My recollection is that we were working on the report when we had that April meeting. It was not complete and it was not completed until after that meeting. So there would have been some revisions. I don't believe that there was anything that Nalcor provided us that changed the contents of that report*."

Next page, Norm – Question: "**Normand said the report was given to Ed and he refused. Bob Card said he didn't do that. Do you know anything about that?**"

The answer: "*No I don't – I would be pretty in touch with Bob. And I obviously would have been the one who would have given it to Bob to give to Ed. So I don't have that recollection that it was given to Bob Card so if Bob said he didn't give it to him, I would believe that.*"

Question: "**So if someone delivered it, it would have been you or Bob?**"

Mr. Thon says: "*That's right, and I just can't remember that I delivered it. My recollection would have been that it would have been delivered by Normand, so if he didn't deliver it then – I know it was our intention to give it to them, but I really just can't recollect. And I thought it was given to them because that was our intention. I can tell you what our intention was. Our intention was to first of all, to really understand where it was with the information that we had, and we didn't have all the information because it was not provided to us…We owed it to Nalcor to tell them where this is at. That is really why we started the committee and why we were going to provide the report. Normand would have provided it, and if it didn't get provided I am not sure why that is.*"

So there's various email traffic that we saw –

MR. LEARMONTH: Yeah. I just wanted to clarify one thing about Mr. Thon. Where he said on page 126, line 16. The question on line 15 was: "**Was the report ever given to Nalcor?**"

The answer: "*I just cannot remember. I remember reviewing it a number of times, I remember signing it off.*"

I just wanted to put on the record that Mr. Thon – I've discussed this with Mr. Thon and he clarified that he – at this point his position is that he does not recall whether he physically signed it.

MR. SHAFFER: Okay.

MR. LEARMONTH: So and I just mention that because Mr. Thon –

MR. SHAFFER: Thank you.

MR. LEARMONTH: – will be testifying and that's a slight variation from – well, it's a variation from what he said. So I just wanted to put –

MR. SHAFFER: Okay.

MR. LEARMONTH: – that on the record.

Okay. Carry on.

MR. SHAFFER: We know, through email traffic and whatnot, that "On May 28, 2013, Jean-Daniel Tremblay and Normand Bechard met with Paul Harrington. The meeting was requested by Mr. Harrington. According to Mr. Tremblay's notes at the meeting, three main issues were discussed:

"*PH" – meaning Paul Harrington – "met with Ed Martin (who'd met with Bob Card);*

"Risk work performed by SLI – What's the deal?;

"Sensitivity of data. Could be subject to an ATTIP – access to information protocol.

"Also on May 28, 2013, Paul Harrington sent a meeting invitation via email to Jason Kean and says *'I would like to know if there are any risks identified by SLI that are not already on the LCP Risk register and to understand the recent work carried out by SLI regarding LCP Risks.* Jason Kean responds and says '*I have no insight of any risk work done by SLI. My only knowledge is what you have indicated. I can't attend the meeting but can take a call on the subject*.' Mr. Harrington replied to that Mr. Kean's response that day saying '*I want to know what they have been doing – Ed raised it with me and I would like to get ahead of this one and not be caught out*."

Next page.

MR. LEARMONTH: That's 128.

MR. SHAFFER: Yes.

"The following day, on May 29, 2013, Mr. Harrington sends an email to Gilbert Bennett regarding his … meeting" – meaning Mr. Harrington's meeting – "with J. D. Tremblay and Normand Bechard (both of SNC) and the SNC Risk Report. Mr. Harrington stated the following:

"Gilbert

"I met with Normand and JD Tremblay (the SLI Risk person) yesterday and asked for clarification on the SLI risk analysis that was carried out on the project.

"It appears that M&M division VP asked for this and the M&M division performed the analysis - it was based on data from the LCP Risk Workshops that Jason had chaired mid last year.

"The status is that a draft with B Gagne and Scott Thon and they may be thinking of providing it to us. I would respectfully decline that offer because of a number of very important factors:

"1 Because the work was based on the same source data that Westney used there is nothing new here - Risk wise.

"2 The risk analysis shows the <u>unmitigated</u> risk and cost result and is not a probabilistic analysis using Monte Carlo sampling techniques - so the results will be subjective in interpretation and will not reflect the mitigations we have implemented or the cost result of the mitigations - i.e. the results will be misleading and inaccurate.

"3 We have had no opportunity to challenge the assumptions or factual accuracy of the input data and we really do not have the time or" the "inclination to do so - we need to focus our efforts and resources on the risks going forward not spend time on some dated, incomplete analysis using techniques which are inferior to those used by Westney.

"So I recommend we talk to Scott and reassure him that we realize there was no mal intent here however given the above we would prefer if this remained as a draft internal document and not presented to us.

"However there is something that we need to work on together and that is to revitalize the risk identification and mitigation efforts within the LCP team. It is now time to assess our current state regarding Risk Management and identify an action plan to get us to the desired state. I have asked JD Tremblay to provide me with that. I know that the LCP team has been very much focussed on dealing with other significant priorities and may not have been able to formally maintain the Risk register however I am also confident that the significant priority work the team is focussed on are indeed the biggest risks facing us and that we are in good shape here and with a little extra effort can catch up without major issue. I will support the Risk effort and lend my authority to Jason and JD Tremblay to help move this forward.

Regards Paul."

We interviewed Mr. Harrington on October 24 and here's what transpired.

Question: "**What we do have are some notes from a meeting with Jean-Daniel Tremblay from May 28, 2013 with yourself, Normand, and Jean-Daniel Tremblay.**"

Answer: "*Do you also have my email?*

"**Yes, we're going to talk about that.**

Do you also have my recollections?"

I ask: "**What are you referring to?**"

His answer is: "*A note I gave to inquiry counsel*."

Question: "**Ed came to you and told you about this analysis that they [SNC] did?**" – question.

Answer: "*I don't know, it was six years ago. Ed came to me and said something about check out the risk.*"

Question: "**So Ed didn't contact you and say SNC did this analysis?**" – question.

Answer: "*Not that I … recollect. I think he just said find out what is going on with risk.*"

Question: "**You called a meeting?**"

Answer: "*Yes because I was concerned about risk.*"

Question: "**You didn't call it to find out what this is about because Ed told you that?**"

Answer: "*No he did not.*"

Question: "**So you're telling me that Normand and JD are lying to me?**"

Answer: "*I would never say that. I would never dream of that.*"

Paul Harrington did provide "a memo titled 'Recollections regarding the SNC Risk Analysis Report.'" The following next two paragraphs – or two excerpts are from this memo, starting on line 9.

"*Late May 2013 issue was raised – I asked for clarification …*" – I'm sorry – "*… I asked for clarification regarding an SNC internal risk analysis. I met with Normand Bechard and JD Tremblay and was told... that a draft of the report is with Bernard Gagne and Scott Thon and that they may be considering offering it to us. I was not offered a copy of the draft report at that time neither did I ask for a copy.*

"*The SNC …*" risk "*… Report surfaced after a meeting between SNC and the Nalcor CEO Stan Marshall in 2016. The report was analysed by the Project Risk expert advisors – Westney in 2017 and they issued a report which confirmed that there were no new risks, Westney carried out a detailed cross check between the SNC report and the risks identified in the …*" – that should be 2012 – "*… QRA used in the Sanction decision.*

"The nagging question for us …" – meaning – us meaning GT – "… was trying to understand the reason Mr. Harrington did not want to see the SNC Risk Report. During the interview, Mr. Harrington noted *It's not that we don't want to see it. I just didn't see the value in it because there were no new risks. I only want to know the new risks. They calculated by a different method. We already had Westney to do it for us. So if they wanted to send it to us, they could have sent it … under a letter. It was up to Scott Thon to approve it, but I don't think he ever did*.

"During the interview, we offered to accept a written response from Mr. Harrington regarding why he did not want to see the SNC Risk Report."

And the way that interview went, after he told me this, I just said – my exact words were – well, from what I remember: Paul, this is a pretty important issue. It's gonna be in my report. Let's not just go off here. Think about it and why don't you send me a written response, and he said thank you. So that's why I offered to do that, because of the sensitivity of this issue.

So: "On October 24 … we submitted a formal request … and sent the following questions to Mr. Harrington's legal counsel for him to respond: Please review the documents regarding the SNC risk analysis that were provided during Paul Harrington's interview and provide a response to the following:

"*Why did you prefer to have the SNC report held in draft and not presented to you? Why didn't you want to review the analysis / report when you became aware that it existed in May of 2013? What were your concerns specifically with it becoming a public document?*

In an email to Jason Kean on May 28, 2012 …" – that should be 2013 – "… *it notes that you 'would like to know if there are any risks identified by SLI that are not already on the LCP risk register'. Later in the email chain you respond 'Ed raised it with me and I would like to get ahead of this one and not be caught out.' Please explain what specifically Ed raised with you regarding the 'recent work carried out by SLI regarding LCP risks'. What did you mean when you said 'not be caught out?'*"

So, he responds, and so we – I basically summarized his responses because they were pretty long, but this is the gist of it.

The first question was: "*Why did you prefer to have the SNC report held in draft and not presented to you?*" Mr. Harrington indicated: "He cannot recall at any time during the meeting with Mr. Bechard and Mr. Tremblay on May 28, 2013 if the SNC Risk Report was offered to him either during or after the meeting. The report was discussed with Mr. Harrington but he indicated the first time he saw it was when it was made public."

He also "… indicated that the reasons for making a recommendation to Mr. Bennett that they …" – meaning Mr. Harrington and Mr. Bennett – "… speak with Mr. Thon to tell Mr. Thon that they prefer the SNC Risk report remain a draft were stated in his email to Mr. Bennett (which is the May 29 … email …" that I read off before on –

MR. LEARMONTH: That's on page 128 – lines 3 to 4.

MR. SHAFFER: Yeah.

MR. LEARMONTH: The email. Yes.

MR. SHAFFER: Yes.

MR. LEARMONTH: Yeah.

MR. SHAFFER: That's it.

Question: "*Why didn't you want to review the analysis / report when you became aware that it existed in May of 2013?*"

Mr. Harrington indicated that he "… referred us to the three reasons he stated in the May 29 … email to Mr. Bennett." And: "He considered the SNC … Report … as a draft confidential document for SNC's internal use only … did not have anyone from Nalcor participating or involved in its preparation which could render the document inaccurate or misleading; and … does not add any value to Nalcor's risk management effort."

Question: "*What were your concerns specifically with it becoming a public document?*"

His concerns were that: "The SNC Risk Report was a draft and not approved by Scott Thon and was an SNC internal document and marked 'Confidential for SNC-Lavalin Use Only.' The SNC Risk Report was an unsolicited piece of worked carried out by SNC for SNC corporate purposes and management. Nobody from Nalcor participated on any aspect of its work. The risk method used by SNC was not a probabilistic analysis."

And that: "The SNC Risk Report …" – next page, 121 – and that "… The SNC Risk Report was potentially inaccurate and misleading and would not be adding any value to Nalcor's risk management efforts."

We state – question was: "*In an email … Jason Kean on May 28 …*" – again that should be 2013 – "*…it notes that you 'would like to know if there are any risks identified by SLI that are not already on the LCP risk register'. Later in the email chain you respond 'Ed raised it with me and I would like to get ahead of this one and not be caught out'. Please explain what specifically Ed raised with you regarding the 'recent work carried out by SLI regarding LCP risks'. What did you mean when you said 'not be caught out'?*"

In his response he indicated – Mr. Harrington indicated he "… did not recall the conversation with Mr. Martin that led to the emails Mr. Harrington wrote and that he wanted to meet with Mr. Tremblay and Mr. Bechard to find out the status of the LCP risk work."

Earlier in 2018 and early on in this process we interviewed Gilbert Bennett and it was after – I believe it was after the meeting with Normand Bechard when he told me about handing the – having the report handed to – out to Mr. Martin and Mr. Martin refused him, and that was his story, anyways.

So, the question was: "**We now have an understanding that various folks saw that SNC report in 2013 and had discussions over it in 2013?**"

Answer by Mr. Bennett: "*You saw that report – I'm not aware of that… Specifically about the report*?"

I say: "**Tell me about it?**"

He said: "*I saw the report when Stan Marshall showed it to me*."

I asked: "**Where there any discussions**?"

He says: "*If you look at the items discussed in this report many of them are on our risk register… I am unaware of having a discussion on this report, no. If you look at the items discussed in this report many of them are on our risk register*."

So, I ask: "**As far as that report – you did not have a discussion or any emails about that particular report?**"

He says: "*No*."

I say: "**No emails about the discussion of the report?**"

He says he "*Couldn't find them*."

I say: "**So the first time you learned about this report was in 2016?**"

Mr. Bennett states that: "*First time I learned about this report was in 16 when Stan showed it to me. Like I said the various risks in here and the subject matter in the report are not unique. Some if these are not new, there are ones that had been discussed throughout the evolution of the project and the risks we were mitigating…Man power availability, DC converter, performance – these are risks that we talked about, these are risks that had active mitigation plans*."

Some matters discussed with Mr. Martin on June 27, 2018.

At the beginning of the interview," – Mister – "… Martin provided some background. The following was mentioned regarding the SNC report:"

He states that: "*One quick aside, that brings me to this SNC Lavalin, you know, foolishness that's been out there and that report business that I was dragged out of retirement for about a year ago, something like that. But, you know, I don't know the genesis of that. You know, there was some suggestion I was offered the report, and you know, didn't accept it which is not on. I have actually no recollection of anything like that happening. But I did take the report after I was invited to comment on it publically, had a look at it and, I spoke, I went through it, and I remember those, all of those risks had been covered, I called a couple if the guys and where are we on this thing, I mean you know it never happened but I remember all these risks being covered*."

Question: "**SNC, why do you think they prepared the risk report?**"

Mr. Martin states: "*I don't have anything to say about that. I didn't know it was prepared. No recollection of getting it. SNC-Lavalin were in the middle of the risk analysis in any event. I have nothing to say really*."

Question: "**Have you heard anything like this before?**"

Answer: "*No. The project team, SNC-Lavalin and Nalcor produced a report. I saw the report after it was announced because I got a copy. It is what it is*."

"**Meeting with Bob Card April 2013 – do you remember?**"

"*I remember meeting with Bob Card but I don't remember the date*."

"**What was on the agenda?**"

"He had … come into the role and I was travelling to Montreal so I wanted to meet him CEO to CEO.'"

"**Did you go with someone?**"

"*Just myself*."

"**Did Bob bring up the investigation or the report?**"

Answer: "*I don't have a recollection of that, no*."

So in response to all this – after the report was publicly released, Nalcor engages Westney Consulting to complete a review of the SNC Risk Report. And the results of their analysis are outlined in a report titled An Analysis of SNC-Lavalin's Risk Assessment Report, which is the 'Westney SNC Analysis', dated December 2017. The report noted the following:

"*The SNC-Lavalin Risk Assessment for the LCP developed in 2013 was never submitted to Nalcor*. However, this conclusion was based on their review of Aconex, Nalcor's document control system and not a review of all potential delivery options" – for example, emails, hand delivery, courier, whatever. As I understand it, they looked just into the Aconex system.

The report also – I'm on the next page, thank you.

MR. LEARMONTH: Page 133?

MR. SHAFFER: Yes.

The report also indicates that:

"*No copy exists in LCMC's comprehensive document control system"– that –*

"*The review was not requested by LCMC management.*

"*The document is identified as 'Confidential for SNC-Lavalin Internal Use Only' and was not approved (signed) by Executive VP Scott Thon, who was a sitting member for the Steering Committee for SNC-Lavalin's EPCM services agreement.* As noted above, we interviewed Scott Thon and he told us the following: *'… I definitely reviewed the report. I believe that I signed it at the end of the day.'*" But now we know that might be different now, Mr. Learmonth.

MR. LEARMONTH: (Inaudible.)

MR. SHAFFER: Yeah.

MR. LEARMONTH: He's not saying that he didn't say this in your interview. But I asked him specifically, and he was of the view that he really couldn't remember it, so he –

MR. SHAFFER: Okay.

MR. LEARMONTH: – qualified his answer somewhat –

MR. SHAFFER: Okay.

MR. LEARMONTH: – which is fair.

MR. SHAFFER: Okay.

"*I don't know why there wasn't a signature on it, that's what makes me wonder whether we actually finalized it and gave it to them or not. Regardless of whether or not I signed it I did review it*."

In this report that Westney prepared, they looked at Nalcor's total cost risk assessment in 2012 dollars and indicated it was between $5.8 billion and $8.2 billion. And for this analysis, Westney was using a P5 to P95 range in updating the 2012 cost risk exposure that was calculated.

SNC's total cost risk results was $8.2 billion, and at DG3, Nalcor's total cost risk exposure was 5.6 to 7.2 billion. For this analysis Westney used a P10 to P90 range, so I guess the point of this was to show – it's to show the various calculations that they came up with and how it compared to SNC.

"In response to SNC's assertion that the existing LCP risk register did not provide a realistic portrait of the actual project risk, Westney noted that '*all risks identified by SNC-Lavalin were included in the LCP risk register and considered in Westney's analysis*.' We compared the risks identified in the SNC Risk Report to Nalcor's risk registers from the DG 3 Project Costs and the Schedule Risk Analysis Report." We – meaning Grant Thornton.

We did note that some risks included – "We noted some risks included in Westney's analysis may not directly compare to the risks included in the SNC Risk Report. These have been summarized in the following table and include responses from the Lower Churchill Management Corporation … to our questions pertaining to these risks. (Note: The LCMC did not address all of SNC's risk concerns as noted in the below table):"

Beginning on the next page is where the table is.

MR. LEARMONTH: 134?

MR. SHAFFER: Yes.

So what we did – basically, it's the same process that we did before. We took the SNC risk that was titled and we compared it to the Westney report, where Westney indicated the SNC risk, noted that how – Westney was noting where Nalcor addressed that risk by matching up the number of – the risk number that was indicated on Nalcor risk registers and that's how they identified it. That's how we identified, that's how Westney was addressing this issue.

So concrete work slippage from the baseline schedule – it's the same as what we talked about before. The Nalcor risk title for this was: Availability of experienced hydro contractors. And that was key risk 20.

The response from the Lower Churchill Management Corporation was as follows: "The aggressive schedule for" – the – "powerhouse and spillway was acknowledged by LCMC in 2012 and was part of the 2012 DG3 QRA. As discussed within this document, the Project schedule at Sanction was recognized as a target schedule with aggressive milestones."

Another risk that SNC had was: River closure slippage from baseline schedule. That was also addressed by Westney, saying that (inaudible) that Nalcor addressed it and Westney indicated it was key risk 20 – the same risk number, the availability of experienced hydro contractors.

The LCMC response to that was: "The critical path activities of spillway completion, river closure and diversion were acknowledged by LCMC and were included in the 2012 DG3 QRA. The active mitigations work implemented by LCMC to ensure that the key milestones were met were successful with river closure, diversion and spillway operation being achieved on schedule."

And that's – and the other – another risk was claims from – arising from contractors or suppliers. Based on the risk register, that was risk number 24, according to Westney, and that risk was titled: "Contractors coordination/powerhouse." The LCMC did not have a response for that; it wasn't in the document that we were provided for that particular exposure.

However, I do also want to point out that the LCMC document was prepared addressing the SNC risks that were considered very high. I will say that this risk 24 was considered by SNC to be very high, so I'm not sure why there wasn't a response from LCMC on this particular one.

The next three risks were considered medium or low risk, and again it was the same process. We looked at what risk number was – how it was coded by – in the risk registers by Nalcor, and how Westney handled it in their report by matching the risk numbers up. And, again, the LCMC did not respond to those risks, but those three risks, again, were considered medium and low and the LCMC response was only for the very high risk that was considered by SNC in their risk report.

The next page –

MR. LEARMONTH: One-thirty-five.

MR. SHAFFER: Yes.

"We compared the inputs of the Monte Carlo simulation from the DG3 cost and schedule risk analysis" using the worst-case scenario to (inaudible) "… to the risk exposure calculated by SNC."

And what we mean by that, if you recall, these risk registers or these inputs had best-case scenario, worst-case scenario and then DG3 scenario for the various pieces of work. And so, for example, there might be a specific scope of work that would say best case would be $100 million, worst case would be $300 million, DG3 is gonna be $200 million – something like that.

So we took those registers and added them up to really calculate what we thought would be the calculated exposure that Nalcor was using at the time to compare to the SNC risk report exposure. And when you take tactical only, worst case, those inputs came in at $6.2 billion – less the base estimate of $5.4 billion gives you a calculated exposure of $733 million.

We compared it to the SNC risk report, which was $2.4 million exposure, so the difference was $1.6 million or $1.7 million dollar difference if you take only tactical and only compared that to the SNC risk report.

If you include tactical and strategic – the worst case scenarios – then the Monte Carlo inputs were $7.2 billion. Again subtract the base estimate, the calculated exposure would be $1.7 billion compared to the SNC risk report of $2.4 billion; there is a difference of $647 million. And it was just to show the comparison between the SNC and what Nalcor did.

In terms of observations and findings from this, here's what we observed. First: "According to Bob Card, former CEO of SNC Lavalin, a meeting took place in April 2013 where the SNC Risk Report was discussed. The Nalcor attendees at that meeting was Ed Martin, Gilbert Bennett, Paul Harrington and Lance Clark. The meeting took place over two days with a dinner and then the following day in Ed Martin's office. Mr. Card could not remember if all three Messrs. Bennett, Harrington and Clark were at every part of the meeting with Mr. Martin.

"Mr. Card indicated that the issues in the SNC Risk Report would have been reviewed throughout the process.

"The May 2013 email from Paul Harrington to Gilbert Bennett provides evidence that both Messrs. Harrington and Bennett knew about the risk analysis performed by SNC in 2013.

"The May 2013 email from Paul Harrington to Gilbert Bennett suggest that not only did Messrs. Harrington and Bennett know about the existence of SNC Risk Report, Mr. Harrington made a conscious decision to not accept it if SNC wanted to provide it to them. He also did not ask to see it.

"Mr. Bennett told Grant Thornton that the first time he learned of the report was in 2016 even though there is an email from Mr. Harrington to Mr. Bennett dated May 2013 that contradicts Mr. Bennett's statement to us.

"Mr. Martin has no recollection of Bob Card bringing up the SNC Risk Report when they met in 2013 even though Mr. Card remembered discussing it.

"The calculated risk exposure from the SNC Risk Report exceeded Nalcor's calculated exposure by an approximate range of $600 million to $1.7 billion.

"Based on the above, we conclude the following:

"1. That it was possible nobody from Nalcor saw the draft SNC Risk Report in 2013 …"

That both "Messrs. Bennett and Harrington (and possibly more people from Nalcor) knew the SNC Risk Report existed;"

That "Messrs. Bennett and Harrington knew the contents of the report pertained to LCP project risks;"

And "Mr. Harrington made a decision not to ask for the report and recommended to Mr. Bennett that SNC keep it as an internal document in draft form and not provide it to Nalcor;" that

"Mr. Card remembered discussing the SNC Risk Report with Mr. Martin, however Mr. Martin has no recollection of it;"

That the "SNC's calculated risk exposure materially exceeded Nalcor's calculated risk exposure."

MR. LEARMONTH: Okay, thank you.

Just go back to page 135. When – this chart here the Comparison of SNC Risk to Nalcor DG3 Risk Ranges – do you recall what P-factor you used in computing those figures?

MR. SHAFFER: Well, if you use the worst-case scenario – well, no, it's not that simple. It's – the way this works is that these inputs – you have a line item on the risk register for a particular scope of work and – let me – again, I'll give the same example.

Let's say, this scope of work on the least-cost exposure, it's going to be 100 million. On a worst-cost exposure, it's going to be 300 million. And that for the DG3 estimate, it was going to be 200 million. The P-factor is not used at that point. Right?

MR. LEARMONTH: Okay.

MR. SHAFFER: Because that's ran – that's ran to the (inaudible) simulation, where all the – where (inaudible) does all that work. All we do is take the worst-case exposure for both the tactical – and tactical – and strategic of what the total project would have cost based on their thinking back then, calculated what the exposure of that would be as far as – in other words, how much the contingency should have been because of that exposure, and compared it to the SNC risk report, $2.4 billion. It says: Here's the difference 600 to 1.7 – $600 million to 1.7 billion.

MR. LEARMONTH: Okay. Thank you for your explanation.

That is the end of my questions for Mr. Shaffer.

THE COMMISSIONER: Was there any discussion whether you wish to commence your cross-examinations this afternoon or shall we start tomorrow? I'm not sure what happened?

MR. LEARMONTH: It's 4:15, I mean, it wouldn't be – if we're going end it –

THE COMMISSIONER: 4:30, which we are.

MR. LEARMONTH: It would seem pointless to start, but I don't know if you want to go past 4.30?

MR. SIMMONS: Mr. Commissioner, I'll speak for Nalcor Energy. I think Mr. Shaffer's probably done enough talking today. He might appreciate that –

MR. SHAFFER: Thank you, Mr. Simmons.

MR. SIMMONS: – for the last 15 minutes. So I don't know what Mr. Ralph's intentions are, but I'd be happy to start in the morning.

THE COMMISSIONER: Right. And you're find with that Mr. Ralph?

MR. RALPH: Yes, Commissioner.

THE COMMISSIONER: Okay.

So we'll being tomorrow then at 9:30 then for cross-examination.

All right.

So we're adjourned 'til 9:30 tomorrow morning.

CLERK: All rise.

This Commission of Inquiry is now concluded for the day.