



COMMISSION OF INQUIRY RESPECTING THE MUSKRAT FALLS PROJECT

Transcript | Phase 2

Volume 30

Commissioner: Honourable Justice Richard LeBlanc

Tuesday

7 May 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. KEAN: Good morning.

THE COMMISSIONER: Mr. Kean, you remain affirmed at this time.

And, Ms. Muzychka, when you're ready.

MS. MUZYCHKA: Thank you, Commissioner.

Good morning, Mr. Kean.

MR. KEAN: Morning.

MS. MUZYCHKA: Before we start, Commissioner, I'd like to enter some further exhibits.

THE COMMISSIONER: All right, go ahead.

MS. MUZYCHKA: They are P-03378 to P-03380.

THE COMMISSIONER: All right, those will be added as numbered.

MS. MUZYCHKA: Thank you.

All right, Mr. Kean, I just want to review some evidence that you gave yesterday with respect to the – your knowledge of the SNC risk report that was prepared in 2013.

You had stated that you couldn't recall initially hearing – or your initial recollection was that the – you learned of it through the media, but then you recalled after reviewing the documents and emails that you had, in fact, heard of it from Mr. Harrington. Correct?

MR. KEAN: That's correct.

MS. MUZYCHKA: Okay.

MR. KEAN: I think that when I had my discovery in August of 2018 I indicated that that's how I became aware of it.

MS. MUZYCHKA: Right.

MR. KEAN: Of course, I couldn't reflect back over the years to understand if there was any communication on it.

MS. MUZYCHKA: Okay.

And you also indicated, as we discussed further, that, you know, you would have liked to have seen a copy of the report because it may have contained information that was of interest to you in your position. Correct?

MR. KEAN: Well, I guess I indicated it would be good to understand if there's anything new from – did SNC identify any new risks or is there anything new in this that would be of relevance.

MS. MUZYCHKA: Right. So you would have liked to have seen it.

MR. KEAN: And to ask, I guess, was there a – were there risks in the current SNC risk system that we were using.

MS. MUZYCHKA: Okay.

I assume that you also forgot that Mr. Norm Béchard had offered the report to you back in '16 when it was brought to Paul Harrington's attention.

MR. KEAN: I have no recollection of that.

MS. MUZYCHKA: None whatsoever?

MR. KEAN: None at all.

MS. MUZYCHKA: Don't recall a discussion where he'd offered the report to you?

MR. KEAN: I can't see Normand offering it to me. He would be interfacing with Paul.

MS. MUZYCHKA: Okay.

Well, let's – to refresh your memory – bring up Exhibit 01677, please, at page 123 – or 124.

THE COMMISSIONER: I'm not sure that's in your book, Mr. ...

MR. KEAN: Sure.

MS. MUZYCHKA: Is it – that is also in the binders.

If we could turn to page 124, Madam Clerk.

Okay, do you see that? This is an excerpt from an interview with Norm Béchard with Grant Thornton.

MR. KEAN: Okay.

MS. MUZYCHKA: And he says in that, that *“Jason ... was aware. I offered Jason to give him a copy. Because Jason was the risk manager. He said no, I don't want it.”*

MR. KEAN: So, I – as I stated, I have no recollection of Normand offering me a risk report.

MS. MUZYCHKA: Okay.

He also testified to that when he was here on March 26 and he repeated his testimony. He said – I'll just read it to you. It's on page 65 of his transcript: “Something ... I did after that meeting with Bob, because I was having regular meeting with Jason Kean – and in one of those meeting, Jason brought up the subject” of “the risk report and I offer Jason: Do you want a copy of the report? No issue with me. I'm going to ask for the authorization to give you the copy and that's it. And Jason told me: No, I don't want a copy of the report.”

And then he said: “We never discussed anything about this report after the meeting with Jason.”

MR. KEAN: Okay.

MS. MUZYCHKA: This –

MR. KEAN: A couple of comments I would offer there is that I didn't have regular meetings with Normand, he wasn't my interface point. He was at a different level in the organization than I was. His interface would've been Ron Power, I guess, the company representative, or Paul

Harrington, from a project director perspective. I was more at a working level.

As I said, I don't recall him offering that. I don't recall it ever being issued to Nalcor under – or discussed in any of the weekly coordination meetings that existed among the project management team that were minuted every week.

MS. MUZYCHKA: Mmm.

MR. KEAN: So, you know, it's a complete – it's new to me, I guess.

MS. MUZYCHKA: I find it difficult to believe that you couldn't remember the details surrounding learning that SNC-Lavalin had prepared a risk report – risk being your area of concern with the project. And, you know, because we've heard from your testimony in which you have excellent memory of details on project packages and budget amounts and all kinds of fine detail and dollar amounts, but you don't remember something as significant as, wow, SNC had done a report back in 2013 and we didn't know about it, and now they're showing it to us three years later. We should see what this is about.

And then there's discussion, and we saw the email from Mr. Harrington yesterday where he, you know, had some very clear views as to why we shouldn't receive it on behalf of Nalcor, you know. You don't have any memory of those discussions or the stir that was created when that report came to light?

MR. KEAN: Well, I was at – on the Lower Churchill Project 9½ years, and you know from the documentation you've seen there's oodles of issues, oodles of things that came up, lots of detail. Certain things stick in my memory. In preparation for there were themes that came up.

MS. MUZYCHKA: Yes.

MR. KEAN: I was surprised when I heard about the SNC risk report in 2017. And, you know, I guess when Commission produced the email – and I understand that's the only email that existed that Mr. Harrington's made me aware that such a report existed – I said I had no awareness of it.

MS. MUZYCHKA: Even though it had only happened a year prior – your discovery of the report, because the report came out in 2016 when Stan Marshall took over.

MR. KEAN: Sorry, yes, not 2017.

MS. MUZYCHKA: 2017, I'm sorry. So 2017 is when you left.

MR. SIMMONS: Made public.

MR. KEAN: It was made public.

MR. SIMMONS: Under the (inaudible).

MS. MUZYCHKA: The report was made public. Yes, but my point is, is that the report was released to Mr. Marshall in 2016.

MR. KEAN: I had – it could've been released to Mr. Marshall. My engagement with Mr. Marshall was very limited. I think I met with the man three times.

MS. MUZYCHKA: Yeah, no, that's not my point. Is that it came to light to Nalcor in 2016 that this report had been done.

MR. KEAN: It came to light, I guess, at the upper level of Nalcor.

MS. MUZYCHKA: Yes, but you were also brought in the loop on that with the emails with Mr. Harrington, correct?

MR. KEAN: If that was 2016 or 2017, I can't recall specifically.

MS. MUZYCHKA: Okay.

MR. KEAN: But emails would show when that occurred.

MS. MUZYCHKA: Yes, I believe it was –

MR. KEAN: I thought it was 2017 when it was issued after I'd left. Sorry.

MS. MUZYCHKA: Okay.

All right, well, the point is, is that it was still within a relatively short period of time in which

you would have recalled the SNC report coming to light. That's my point.

MR. KEAN: So I – as I said, you know, we go back to looking at the risk work we were doing. J. D. moved into a role with – J. D. Tremblay into a new role of risk manager. I was working with J. D. to try to invigorate the risk management process in this, in the project following DG3.

J. D. did not bring anything to my attention of him being involved. I know I was struggling with him to get certain things done from a risk perspective.

MS. MUZYCHKA: Yes.

MR. KEAN: He never brought it to my attention.

J. D. was my working interface. He was, you know – partially reported to me, I guess, from a risk management perspective. He didn't bring anything up to me from a risk management that anything was underway.

My working interface with Normand was limited. As I – in 2013, as I think I've testified, I was focused primarily on a transmission side of the business, which Normand had very little involvement in.

MS. MUZYCHKA: Okay, so is it your evidence then at this Inquiry that Mr. Bécharé did not bring that report to your attention?

MR. KEAN: Yes, it is my evidence.

MS. MUZYCHKA: Okay.

All right, the next thing I want to revisit is the issue of your text messages. And, specifically, you were told or you were aware that on the 11th of April 2019, you were issued a summons to produce all messages.

And I'll just read from it: You are hereby required to produce to the Commission, on or before April 17, 2019, all text message communications and documents in your custody, possession or control, including messages sent via social media services or other text communication services that are in any way

related to the Muskrat Falls Project or interviews, evidence or other events connected to the Commission of Inquiry Respecting the Muskrat Falls Project.

Okay? And you were asked to provide this information by April 17, okay? You had indicated that you had no such messages because your text messages delete after 30 days? Is that your evidence?

MR. KEAN: My counsellor responded to Commission with a letter indicating verbally what I had told her about what I did have in my possession and not and –

MS. MUZYCHKA: Did you tell her that you had no text messages?

MR. KEAN: I had no text messages of relevance and my phone does delete after 30 days. And, as I indicated yesterday, if I do communicate with people that are affiliated with the Muskrat Falls Project, either currently or previously, for various reasons –

MS. MUZYCHKA: If you do, how do you communicate?

MR. KEAN: By phone. I might run into someone on the street, verbal conversation.

MS. MUZYCHKA: And what about if you receive a text from Scott O'Brien or from Paul Harrington, would you respond via text?

MR. KEAN: I may, yes, to say: Yes, I've received your text.

MS. MUZYCHKA: Okay.

So are you saying that you had some text messages that were of no relevance or there were no text messages?

MR. KEAN: I had no text messages in my possession related to the Inquiry at that point in time.

MS. MUZYCHKA: None on April 11 when the summons was issued.

MR. KEAN: I had none on my device.

MS. MUZYCHKA: Okay.

MR. KEAN: I may have received and deleted.

MS. MUZYCHKA: You use your phone for business purposes, I take it?

MR. KEAN: Yes, I've always used it. I have used my phone for various third parties that I – my clients, I usually have access through their email systems using my phone, yes.

MS. MUZYCHKA: Okay and you just have the one phone, is that correct?

MR. KEAN: That's correct.

MS. MUZYCHKA: So personal, business, all in one.

MR. KEAN: It's a business phone.

MS. MUZYCHKA: Business phone, okay.

So if it's a business phone why would you delete your messages? Some people might find that strange from a business practice perspective that you would have your messages deleted every 30 days without having a record.

MR. KEAN: Because of iCloud storage capacity. I just don't want to buy the storage capacity. My iCloud storage is full of files –

MS. MUZYCHKA: And you can't –

MR. KEAN: – quite simply.

MS. MUZYCHKA: You can't keep messages for a longer period of time on your phone based on its internal capacity, storage.

MR. KEAN: Well, I used to get capacity reminders so that was one way of making it easy. Just delete, just not have messages, look at what you back up to the cloud.

MS. MUZYCHKA: Okay.

MR. KEAN: And there's an easy setting in I – in the phone that gives you – frees up a lot of space.

MS. MUZYCHKA: And when did you start doing that?

MR. KEAN: I think two years ago, a year and a half. I got a new phone.

MS. MUZYCHKA: Did you speak to any members of the project management team after you received your summons to produce text messages?

MR. KEAN: Did I ...?

MS. MUZYCHKA: Did you speak with anyone? Did you have a conversation with Paul Harrington or with Scott O'Brien or Lance Clarke?

MR. KEAN: I'm sure I had a conversation with Ron Power; I had lunch with him probably a couple of weeks ago.

MS. MUZYCHKA: But did you speak about the text messages?

MR. KEAN: No.

MS. MUZYCHKA: Or your summonses?

MR. KEAN: No.

MS. MUZYCHKA: Okay, you're under oath and all these other witnesses are going to come to court – or to Inquiry and they're going to testify, presumably, as to –

MR. KEAN: I understood from my counsel that it was also the counsel for Mr. Power that he had received the same summons.

MS. MUZYCHKA: Yes, so –

MR. KEAN: And there were others receiving the same summons so, of course, I knew that that existed.

MS. MUZYCHKA: Okay.

It's just – it's curious that no text messages were received from Lance Clarke or Ron Power, and none from yourself, whereas other members issued summonses produced large volumes of text messages and some of which included yourself.

MR. KEAN: I have received – I actually received text messages yesterday from Lance Clarke just to say good luck today.

MS. MUZYCHKA: Would you produce that? That's related to the Inquiry.

MR. KEAN: Asked today I would, yes.

MS. MUZYCHKA: Okay, so there's nothing on your phone prior to that that had anything of that nature?

MR. KEAN: No.

MS. MUZYCHKA: Because you did state in your evidence that you had nothing of relevance.

MR. KEAN: So if I do get an email or a text in that regard – let's say I had a text from a gentleman that I worked with in the past regarding an opportunity that I may be chasing – so that individual may be employed by the Lower Churchill Project today – is that of relevance? I didn't think so.

MS. MUZYCHKA: It relates to the project, though.

MR. KEAN: No, it doesn't; it relates to a new opportunity.

MS. MUZYCHKA: Okay.

All right, well, I'm not going to debate that. I think that the issue is clear that the message – or the summons, quite clearly, spoke to text messages, and it's your evidence that you have none and had none that were related to the project or the Inquiry.

MR. KEAN: I stated – that's correct. And I also stated that I had text messages – received text messages from individuals that I had worked with or may exist – may work currently on the Lower Churchill Project, but they weren't in regards to the Inquiry or any things that were not in the public domain.

MS. MUZYCHKA: Okay.

Yesterday, we also spoke of the schedule and the P5, P10 reference that was in Mr. Harrington's letter to Mr. Marshall. And you had testified that

government was aware of the P5, P10 schedule risks. Correct?

MR. KEAN: Government? I think we were having that conversation regarding the independent engineer.

MS. MUZYCHKA: The independent engineer, but then you said that you had also presented to the Oversight Committee, which is the government.

MR. KEAN: Not in regards to that conversation; I don't recall that. I thought our conversation was regarding the MWH engagement.

MS. MUZYCHKA: Okay. So –

MR. KEAN: I had made reference to presenting to the government Oversight Committee, but that was in the 2016-2015 period –

MS. MUZYCHKA: Right.

MR. KEAN: – regarding transmission status.

MS. MUZYCHKA: So you did communicate to the government through the Oversight Committee?

MR. KEAN: In 2015 I believe I was asked to give the first presentation on the status of the transmission system.

MS. MUZYCHKA: Right.

MR. KEAN: And I know I gave a couple of those in 2016.

MS. MUZYCHKA: We've looked for a copy of that presentation and have not been able to locate it. We haven't found any documentation between Nalcor and the government in which the schedule is described as a P5, P10 probability. And we've also not heard from any witness from the government who's testified, including Kathy Dunderdale, that they were aware that the probability of success of the schedule, which was described as achievable and attainable, was actually very unlikely.

Do you have any recollection or can you point to any document, or any conversation that you may

have had in which that information was imparted, or that you had knowledge that that information was imparted to the government?

MR. KEAN: So just for clarity, Commissioner, I spoke about – initially about the presentations that were being given to the government Oversight Committee regarding the transmission line.

MS. MUZYCHKA: Yes.

MR. KEAN: So in 2015-2016. That was related to the issues we were having and our viewpoint on what the challenges were. In terms of the presentation of the risk on the schedule, that would've been an issue that would've been discussed pre-sanction that I had no involvement in. I think I testified in Phase 1 that my communication of the schedule work and risk was through Paul Harrington, and to some regards, to Mr. Ed Martin.

As to the communication and process beyond that prior to sanction, I had no involvement in. I think I indicated pre-sanction that once the cost – the project cost left my desk on the 26th of July, I had – really had no visibility in it. I actually had – as for what's in the CPW model, really, that was invisible, that was being ran by Investment Evaluation.

MS. MUZYCHKA: So your –

MR. KEAN: And, in fact, I learned through the Grant Thornton report that the operating cost estimate that's carried in the CPW wasn't what I had submitted from the team on the 27th of July. So, again, it's a bit of a black box to me.

MS. MUZYCHKA: So you –

MR. KEAN: But from a – you know, to go – to answer your question directly, Commissioner, regarding the schedule and the risk associated with the schedule, the work that had been in the DG3 QRA was communicated. Mr. Harrington was aware of it; Mr. Martin was made aware of it in that summer period, early September of 2012. As to how the shareholder and other entities were made aware of that, I had no idea.

MS. MUZYCHKA: Okay.

MR. KEAN: I had no involvement in that.

THE COMMISSIONER: Just before you go on, I just want to clarify something now that you've just said related to the cost. So you said in July of 2013 you – once it left your desk that it was – it was sort of a black hole afterwards with regards to your involvement in any dealings with that, and then you referred to the CPW. Can you just repeat what you just said to me?

MR. KEAN: So I may have made an error there, it's July 2012 –

THE COMMISSIONER: '12, okay.

MR. KEAN: – was when the cost – capital cost and operating cost profiles left my desk to provide input to Investment Evaluation – Nalcor Investment Evaluation, for the purposes of undertaking their CPW analysis. Following the release of that information in July 2012 from my desk, I had no involvement therein with Nalcor Investment Evaluation and the CPW modelling.

Regarding the schedule and the low probability –

THE COMMISSIONER: Just to go back –

MR. KEAN: Sorry.

THE COMMISSIONER: – before you go to the schedule, so then you said something about the fact that after you read the GT report, that you learned that the number that you had provided, or the numbers that you had provided – I'm not quite sure how you said it – that they were actually different than what you had submitted.

MR. KEAN: For the operating cost.

THE COMMISSIONER: The operating cost.

MR. KEAN: The operating cost was issued from my desk on the 27th of July 2012. Those operating costs are not the ones that Grant Thornton referenced in their report that are in the CPW modelling. So I don't know where the disconnect is and I guess it just – I was using it as a reference as to – I wasn't involved in the model analysis or calibration or checking or any

involvement therein with Nalcor Investment Evaluation.

Does that clarify that for you, Commissioner?

THE COMMISSIONER: Yes, thank you.

MR. KEAN: Regarding the schedule, the DG3 QRA work was done in that June through July, August, finalized in September. Throughout that period, there was a lot of engagement with Mr. Harrington, of course, and the Nalcor Executive Committee, including Mr. Bennett and Mr. Martin, there to talk about the schedule and some of the challenges that were existed in achieving the – mid-2017 first power.

The results of the QRA were discussed with that group consistently, you know, with the timing and discussions with – that existed with the independent project review in that August period. After that, I had no further involvement, as I recollect, in any discussions on that.

I remember coming back from vacation in August month, sending some reminder emails to people – to Mr. Martin, Mr. Harrington – of the strategic risk exposure. Those have been entered into evidence as exhibits, I recall –

MS. MUZYCHKA: Yes.

MR. KEAN: – in Phase 1. But as for the engagement with the shareholder, that was above my pay grade.

MS. MUZYCHKA: All right.

On the environmental issues that we talked about briefly yesterday, with respect to the geotechnical investigations –

MR. KEAN: Yeah.

MS. MUZYCHKA: – you recall there was an issue as to whether or not an environmental assessment could be undertaken and there was some delays. And I had asked you whether or not the government or Nalcor had proceeded with a geotechnical – a full geotechnical investigation and you had said, no.

Were you aware that Nalcor could have requested government to – for the environmental

permit in order to conduct the geotechnical assessment?

MR. KEAN: I wasn't particularly aware of that because I wasn't involved in managing that aspect. I wasn't involved managing the transmission in that period.

MS. MUZYCHKA: Are you aware whether the need for an environmental assessment was considered a barrier to undertaking a full geotechnical assessment?

MR. KEAN: Yes, I am.

MS. MUZYCHKA: Okay.

MR. KEAN: And I indicated that yesterday. As a part of the management team, I was made aware of some of the challenges and risks associated with the project splitting. And that the risk of undertaking a geotechnical program on the transmission line in the interior of Labrador would be challenging, unlike for the geotechnical program that Nalcor sought approval and actually undertook for the Strait of Belle Isle program, as well as at the switchyard's locations and the transition sites.

And the – those were sought and approval was granted, I understand, because of the locations. Nalcor didn't – I don't think Nalcor attempted to seek approval, in – to my knowledge, for undertaking a geo program in the interior of Labrador, given the concern that it might have with regards to – I guess, concerns by stakeholders regarding the environmental assessment process as I understand it.

I wasn't that close to that file, at that point. I think it would be – Mr. Bennett, certainly, could provide more context and clarity as to what the issues were around – regarding that, but I was made aware that this was a no go, basically.

MS. MUZYCHKA: Okay.

I just want to draw the Commission's attention to P-03276. We can bring that up, please.

THE COMMISSIONER: 03276. So that would be at exhibit – or tab 122 in book 5.

MS. MUZYCHKA: And this is a letter to Peter Ralph, solicitor, Department of Justice and Public Safety. And it's in response to an inquiry regarding environmental assessment process and the ability for Nalcor to conduct geotechnical investigations in the Labrador-Island Transmission Link Project.

And then, without reading through the whole letter, I just would draw your attention to the second – or the paragraph after number 1. At the bottom it says: "The *Regulations* are clear that the Lower Churchill project – both the hydroelectric power development and the transmission line – required assessment."

And then on page 2 in the first full paragraph, the "Department acknowledges that to complete the required project planning to determine project feasibility and prepare environmental assessment documentation, proponents need to conduct baseline analysis. In that regard, site research and analysis to a reasonable amount is supported."

And then it goes on to say: "Testing or investigation required to prepare the information submitted for an environmental assessment can be reviewed and discussed to determine what is reasonable to complete in advance of registration, without compromising the integrity of the assessment process." So there is provision within the government to apply for and receive the appropriate permit.

On the last page of the letter, on page 4, last paragraph or second-last paragraph, it's noted that: "Should Nalcor have identified the need to conduct testing before the release of the Labrador-Island Transmission Link project from environmental assessment, the Department could have considered the request."

Were you aware of the ability of government to provide the necessary information so that the required testing could be undertaken?

MR. KEAN: Well, as context wise, 2007-'08, there was a lot of field – (inaudible) field data collected on the transmission line to support the environmental assessment process, as well as the information required to collect for the design of a family of foundations. So I think we talked about that.

MS. MUZYCHKA: We did.

MR. KEAN: And there was a lot of small – a lot of test pitting done in Labrador with small excavators that could be flown by helicopter.

Following the submittal of the environmental assessment, I understand as others could – the facts would be able to confirm this – that we did undertake detailed geotechnical programs at sites that were more, let's say, brownfield. By that I mean sites at the transition compounds or at Soldiers Pond.

MS. MUZYCHKA: No, I understand all that, Mr. Kean. I think the key issue is that a full geotechnical assessment was what was recommended in order to have a reasonable degree of certainty as to the conditions. And that was the point that there was some resistance about doing that, environmental approvals, et cetera. So whether a limited amount was done is not really the issue. It's whether the full assessment could've been done is really what's an issue.

MR. KEAN: I think that would come back, Commissioner, to the risk that was deemed with the environmental assessment process and what would undertaking the full assessment – what value would it provide versus the risks that it might add.

MS. MUZYCHKA: Okay.

MR. KEAN: So Mr. Bennett would be able to provide more context and clarity around the environmental assessment process and the thoughts therein at that point in time.

MS. MUZYCHKA: All right, okay.

I'm going to move on now to where we had left off yesterday, and that's to review the environmental – or sorry, the SNC risk analysis report. And I just wanted to go back to the question we were dealing with yesterday in terms of your role in the preparation of the Westney report. And you indicated that you had a role and that you had provided information at the request of Mr. Harrington. Is that correct?

MR. KEAN: I indicated that I provide a cursory look. I spent about a couple hours reviewing the

very high risks that were noted in the SNC-Lavalin report to do some cross-correlation with the DG2 QRA. And I provided that to Mr. Harrington –

MS. MUZYCHKA: Okay.

MR. KEAN: – in about – sometime in that 2017 period, summer, fall I think.

MS. MUZYCHKA: Did you decode the key risks for Westney?

MR. KEAN: I didn't lead the decoding, no.

MS. MUZYCHKA: Okay. So what was the nature exactly of the information that you provided? Was there a report? Was it verbal?

MR. KEAN: There would've been – I recall receiving a document from Mr. Harrington with his interpretation and I – he asked me to put the relevant key risk numbers in there.

MS. MUZYCHKA: So you put the numbers that you felt correlated –

MR. KEAN: For the very – I think SNC had identified seven to nine very high risk, and there was a – the SNC report talked about there was a description of those. Mr. Harrington had provided some commentary on those and I was asked to just can you look at confirming if these are the key risks that we've identified here today. And I went through and did a cursory look for those key risks for those seven to nine very high risks that SNC-Lavalin had flagged.

MS. MUZYCHKA: Were you aware that Mr. Harrington was bringing that information to Westney for further review?

MR. KEAN: I understood that Westney was doing a piece of work, yes.

MS. MUZYCHKA: And were you also doing contracting work for Westney at the same time?

MR. KEAN: No, I was not.

MS. MUZYCHKA: You had nothing to do with it, from Westney's perspective?

MR. KEAN: No, from a Westney perspective, I joined Westney in the December period of 2017 to support Anadarko. In addition, in the spring of 2017 I assisted Westney in the 2017 QRA for Muskrat Falls generation only. And that was a 2½-month period, I believe, from March through June of 2017 and my contract ended.

So I had no – I guess in the period between concluding the contract for the QRA work for the 2017 QRA for Muskrat Falls, through to my starting with Westney USA and support Anadarko, I had no involvement with Westney at all from a contracting perspective. We kept in touch for opportunity (inaudible).

MS. MUZYCHKA: Okay. So you weren't involved in any work with Westney that related to the Muskrat Falls Project and the preparation of the risk report.

MR. KEAN: No, I was not.

MS. MUZYCHKA: All right, I am going to draw your attention to P-01847 which is ...

THE COMMISSIONER: Tab 49, book 2.

MS. MUZYCHKA: Thank you, Commissioner.

And this is a PowerPoint titled: "An Analysis of SNC-Lavalin's Risk Assessment Report" and it's dated December 2017. And the documentation shows that when the SNC 2013 risk report was raised as an issue in 2017, Paul Harrington engaged Westney to do this analysis.

Did you have any involvement in the presentation of this PowerPoint?

MR. KEAN: No, I did not.

MS. MUZYCHKA: Okay.

So we can – if we can just go to page 6. Okay.

So in that document you can see that there are – it's a sample from the report. And the risk title, for example, says: "Concrete works slippage from baseline schedule," and then it's checked as included. And then the next column: Nalcor-LCMC reference is KR 20.

So can you explain to the Commissioner how we can read that particular page? So the first column –

MR. KEAN: So I interpret the first column as being the title – the risk title that SNC includes in their report.

MS. MUZYCHKA: Okay.

MR. KEAN: And I guess that would include a more fulsome description in the SNC report of what they're referring to.

MS. MUZYCHKA: Okay.

MR. KEAN: I interpret the second column as included to say it's included in the DG3, according to the footnote that says: "Included in Nalcor's Decision Gate 3 Project Cost and Schedule Risk Analysis Report and incorporated into Westney's analysis."

MS. MUZYCHKA: Right.

So if we look to the DG3 risk analysis report under KR 20, we would then decode what that risk refers to, correct?

MR. KEAN: You would get reference to what KR 20 is. I guess it would be important to understand and see the fulsome description for SNC's risk that's entitled "Concrete works slippage from baseline schedule." And, of course, I do – I will add that this has been – the schedule and the risk associated with it due to concrete production has been something we talked a lot about during my testimony, I guess.

MS. MUZYCHKA: Okay.

So, if we look at – just in terms of interpreting this report, it seems somewhat difficult to interpret a report where the Nalcor reference is not spelled out as to what it specifically includes. Wouldn't you agree that this is a rather difficult report to read by itself because you really don't know what KR 20 is or KR 24?

MR. KEAN: I think it would be –

MS. MUZYCHKA: It –

MR. KEAN: If I may.

MS. MUZYCHKA: Sure.

MR. KEAN: I think it's always useful to understand underneath the risk itself what is the underlying issue. Let's say the concrete works. What's the underlying issue? And then, what is the – is there – are there comparable underlying issues in the Nalcor DG3 QRA report? And from reading this page it would be a bit difficult to infer that I would concur.

MS. MUZYCHKA: Yes.

Okay. So depending on who this report is for, they may or may not have an understanding as to whether the original DG3 estimate included the risks that SNC-Lavalin had subsequently identified. Correct?

MR. KEAN: Sure. I guess is there a – I'm not certain if Westney produced a more detailed written report that falls underneath this presentation that describes these risks, each of them in more detail.

MS. MUZYCHKA: Not to our knowledge.

MR. KEAN: So I did – you did ask me about this last week in our discovery.

MS. MUZYCHKA: Yes. You had indicated that you were responsible for doing the matches. Correct?

MR. KEAN: For the very high ones, which are the ones I note are, you know, the big ticket items; I think the seven or nine top ones.

MS. MUZYCHKA: And are those the ones that are marked with blue dots?

MR. KEAN: No, they're the ones – yeah, I think, according to Westney's top right hand, it says the salmon coloured one there.

MS. MUZYCHKA: Yes, top nine risks by size.

MR. KEAN: Yes.

MS. MUZYCHKA: Okay.

Well, if we look to – what we'll do is we're going to review the SNC report categorization and then we're going to also review the DG3

analysis and the key and just do a brief comparison. So, for that purpose, we'll have them come up on screen, but there is also a binder on your desk which has the coloured tabs on it which, if you prefer to look at it in a paper copy, it might assist the process. I think the Commissioner may also have ...

THE COMMISSIONER: What is that binder titled because there is (inaudible).

MS. MUZYCHKA: I don't – it's entitled: Comparison of risk analysis, Westney; analysis of SNC risk assessment report 2017; SNC risk assessment 2013; and DG3 project costs and schedule risk analysis.

THE COMMISSIONER: Okay, I think I have it.

MS. MUZYCHKA: You have that?

THE COMMISSIONER: Yeah.

MS. MUZYCHKA: It essentially contains all the information that's in the exhibits, in the binders, but we've just pared down to pull out a few examples for ease of reference. And they will come up on screen as we go along.

So we'll start with –

MS. HUTCHINGS: Commissioner.

THE COMMISSIONER: Yes.

MS. HUTCHINGS: I haven't seen that document, I've only – to review it, but I'd like to know who's the author of the document.

MS. MUZYCHKA: This document that we're referring to is merely a compilation of the exhibits.

MS. HUTCHINGS: But it's – somebody had to author it and if the document is going to be put to Mr. Kean, we should know who the author is. The other thing is –

MS. MUZYCHKA: Well –

MS. HUTCHINGS: The other thing –

THE COMMISSIONER: I agree with that.

MS. HUTCHINGS: Yeah.

THE COMMISSIONER: So what I think I'm going to do, rather than create a big hodgepodge right at the moment, you haven't seen this thing, to tell you the truth I'm only looking at it for the first time as well.

MS. HUTCHINGS: Yeah.

THE COMMISSIONER: So we're going to take five minutes now and Ms. Muzychka and Commission counsel will review this with you, and then if you have an issue with it afterwards we'll get back to it.

My understanding of this, just having looked at quickly, is that it's just – as opposed to me having to go through five books to figure out where we're going, everything is in the one document. So it's been put together by – in one document. But let's wait and see. You'll talk to Ms. Muzychka and we'll take five minutes now to try to straighten this out so hopefully it won't be an issue.

MS. MUZYCHKA: Yes, and –

THE COMMISSIONER: Let's take five minutes then.

MS. HUTCHINGS: Okay.

MS. MUZYCHKA: Thank you.

MS. HUTCHINGS: Thank you.

THE COMMISSIONER: Yeah.

CLERK: All rise.

Recess

CLERK: All rise.

Please be seated.

MS. HUTCHINGS: Commissioner, if I may?

THE COMMISSIONER: Ms. Hutchings.

MS. HUTCHINGS: Yes.

THE COMMISSIONER: Yes.

MS. HUTCHINGS: We've had a look at this and there's a couple things I want to say. First of all, we don't want to thwart the information for yourself to understand what's going on with respect to the risks. The second thing, though, we wish to point out is that – and I'm looking at the – one of the pages from this document that counsel is going to be referring to and it's a Westney document, so it wasn't prepared by the witness. And the correlation – there's a correlation there between the risk title and the Nalcor LCM reference, so the witness did not participate in that correlation.

To give the document to the witness to be able to speak in detail – he's not going to be able to do that, but he can talk about generalities on this. And it – you know, I'm not going to direct how counsel is conducting the – presenting the evidence, but this is a Westney project, a Westney document, and I see from the binder that Mr. Kean has that there's been a lot of backup information presented by Westney in the presentation of the – this particular document that we see in front of us.

So those are my comments – that the – for him to be able to speak to, I guess – because he didn't prepare any of this. That's my problem. I – if he's going to be – I don't think he should be cross-examined on it and whether or not that this is, in fact, a correlation with what the report that SNC-Lavalin had prepared.

My understanding, as well, is that the evidence already given by the SNC people – from Scott Thon, Mr. Béchar, Mr. Lemay, Tremblay – that they don't take any issues with the fact that there was any further risks that weren't even included in the register. It was a 2013 document that we're talking about from SNC-Lavalin.

And so that's all I wanted to say and to raise those points.

THE COMMISSIONER: Okay.

MS. HUTCHINGS: Thank you.

THE COMMISSIONER: Any comments, Ms. Muzychka?

MS. MUZYCHKA: Yes, Commissioner.

I think that Mr. Kean is the appropriate witness to review this document, largely because he is acknowledged as being the person who was heavily involved in developing the risks and identifying the risks. And for the purposes of our exercise, you know, he did involve himself in providing context to Mr. Harrington. And he can read this report and he can offer his view as to whether or not the risk that's cited by SNC matches the risk that he would have been involved with when the DG3 risk analysis was performed.

And that's, basically, all that we're doing. We're not saying that Mr. Kean wrote this report, but it's certainly within his scope of knowledge and his involvement with the project over the past number of years that he could speak to whether or not the appropriate key risk that's identified in the Westney report is, in fact, the same.

And let's not forget the position that Nalcor took, when the report came to their attention, that it was very quickly dismissed by Mr. Harrington as being – as not including any new risks. And so I think it is appropriate that Mr. Kean comment on that since he is the risk person and he's the one that Mr. Harrington turned to, to make the comparison or to provide further information on that.

MS. HUTCHINGS: I just want to clarify what Ms. Muzychka is alleging as to the role of the witness. He's already given his evidence as to his role with respect to the risk management and, certainly, he was the overseer, but it was Westney who put together the risks and it was Westney that Nalcor ultimately went to, to get a full analysis of what was prepared by SNC-Lavalin. So I really don't want that to be confused.

THE COMMISSIONER: Right.

So, from my perspective, this is what I think is happening here. The SNC report of 2013 referred to certain risks. Mr. Kean has already testified that on behalf of Nalcor he was requested by Nalcor to assess the – some very high risks, which I understand are those that are – some of those are the salmon-coloured ones on the document.

The purpose of this exercise, as I understand it, having looked through the document on the break, is that we're taking five of those risks and comparing them to ensure that the SNC risk that is identified is also – was also identified by Nalcor. And I assume that what's happening is we're using the number, some of which these numbers may be – as Mr. Kean has already testified, I believe, is that he would've provided the reference to Mr. Harrington.

We're going to compare what the SNC risk is identified to the one that Nalcor identified. And that's the purpose of this, and it's also talking about what Nalcor's position was versus SNC's position at the time with regards to mitigation and to cost.

So I see no – you know, I don't think it's being alleged that this witness has drawn up the document, but I do think he has enough information. And I've listened to Mr. Kean now for quite a number of days giving testimony and it's clear to me that he had a lot to do with risk management and I think he is an appropriate person to ask the questions. I'm assuming the questions will be relating to comparing the two, what SNC had done and compared to what Nalcor had done at the time. So, I don't see that as being problematic and, in fact, I think it might be helpful to me.

So, go ahead, Ms. Muzychka.

MS. MUZYCHKA: Thank you, Commissioner.

Okay, so we're going to pull up P-01847 at page 6. And –

THE COMMISSIONER: Okay, so that's in that book that you have there.

MS. MUZYCHKA: Yes.

MR. KEAN: Yes, thank you, Commissioner.

MS. MUZYCHKA: Oh, it's the yellow Post-it refers to the SNC risk title. And we're going to look at the second line, "Concrete work slippage from baseline schedule" and you've matched it with KR 20. Correct?

MR. KEAN: No, that's not correct. The Westney report matches it at KR 20.

MS. MUZYCHKA: Okay but, presumably, they had some input –

MR. KEAN: Yeah.

MS. MUZYCHKA: – from –

MR. KEAN: Yes.

MS. MUZYCHKA: – you indirectly through Mr. Harrington.

MR. KEAN: Sorry.

MS. MUZYCHKA: Yes?

MR. KEAN: Yes.

MS. MUZYCHKA: Okay.

MR. KEAN: May I ask – may I offer a little bit of context with regards to Exhibit P-00130, which is the DG3.

MS. MUZYCHKA: Well, we'll get to that in a moment.

MR. KEAN: I think it might be useful for the Commissioner in the context of providing a little bit of holistic where these references do come from, particularly when it comes to the work that was – is referenced and what the basis of the DG3 QRA is.

THE COMMISSIONER: Go ahead.

MR. KEAN: So, could we have Exhibit P-00130 available?

THE COMMISSIONER: All right, let me just ask you –

MR. KEAN: Sure.

THE COMMISSIONER: – did you have a copy of this before today? Were you given a copy of this document, this 01830?

MR. KEAN: It was discussed in my discovery that we would –

THE COMMISSIONER: So when was that?

MR. KEAN: Last week.

THE COMMISSIONER: Okay.

MR. KEAN: That was on – so about seven, eight days ago, I think. We met for discovery so I did take a cursory look over it on the weekend.

MS. MUZYCHKA: Yes.

THE COMMISSIONER: Okay.

All right, go ahead. We'll bring up P-00130.

MR. KEAN: Yes. So if you go to page 32, please.

So, Commissioner, what you see here is a risk register and I'll draw to your attention the date of this. It's in the centre; it's printed on the 9th of May 2012. There's 21 pages and this is one of several risk registers that form the basis of the input to the DG3 QRA.

You'll see on the right-hand side it's an SNC-Lavalin logo, so this register is printed from SNC-Lavalin's system which we were using. And you'll see referenced on the left side to an ID number, and you'll also see next to that, in the next column, is component, and there's a risk title and a risk description. So, just a bit of context as I may need to refer to these in drawing out these comparisons – excuse me.

Also, within Exhibit 00130 there is a risk register on page 90 that is explicitly for the Strait of Belle Isle crossing, risks that relate to that project, that sub-project itself and that's provided on several pages. And then the pages that proceed that you'll see a specific stand-alone risk assessment that was provided and started on page – pardon me, started on page 54, that gives a lot of context as to some of the background risks that were applicable for the Strait of Bell Isle crossing.

Just two more references. Page 97 is another risk register which comes from Nalcor's Enterprise Risk Management system, specifically related to risks that were being contributed by the Lower Churchill Project. So there's a number of pages here on, again, more risk. And these were many of the key risks that we've been referring to, Commissioner, the bigger ticket items.

And then, on page 146 there is an extract here of what are known as – there are 26 pages of a key risk status report which summarizes the then status of some of the key risks. It doesn't get into, in this status report, some of the root cause and some of the background context of those risks, just for a little bit of insight.

So these risks, as shown on these various registers, were items that were considered in the DG3 QRA that was undertaken by Westney that provided the basis of the lower probability for the schedule analysis and indicating the cost contingency and management reserves. And I think on page 283 is Westney's report talking about the schedule risk analysis in particular, which is where it's been referenced to the low probability for the schedule.

And if we go to page 284 it draws out that one of the major risks coming out of this that's influencing the schedule is the schedule risk exposure, stating that there is a potential time or schedule risk beyond the plan due to weather and the volume of work in the powerhouse. And it goes on to state: "The current schedule assumes aggressive performance in the powerhouse concrete, and a few sections of the transmission line" that "are challenging."

So I just wanted to provide that for context as to – if I can use that for bridging to answer some of your questions, Counsel.

MS. MUZYCHKA: Yes. Thank you.

All right, let's get to the analysis. So we looked at P-01847 at page 6, and I want to be able to compare the concrete work slippage to the SNC risk report, which is at P-01977, page 14.

And if we look at the second line in that chart, the risk description is: "Powerhouse and spillway concrete works are planned on a three year duration (2 winter seasons) with a very aggressive schedule providing little float, which might result in additional delays (possible 6 months) and costs." Correct?

MR. KEAN: That's what's stated, yes.

MS. MUZYCHKA: Okay.

Now, let's look at the DG3 key risk description. Madam Clerk, that would be P-00130, page 159 and 160. I think it spills over.

And here, the risk description of – or, sorry, R20 which is what we were looking at. And R20 is the same as KR 20, is that correct?

MR. KEAN: That's correct.

MS. MUZYCHKA: Refers –

MR. KEAN: K is used to reference key.

MS. MUZYCHKA: Key risk.

MR. KEAN: KR, key risk.

MS. MUZYCHKA: Okay.

But when we look at 00130 – P-00130, it's – the risk is identified as R20. I just want to confirm that it is, in fact, the same.

MR. KEAN: According to Westney's legend, KR equals key risk.

MS. MUZYCHKA: Okay.

All right, so if we look at the description of R20, it says: Availability – wait now, sorry.

"Availability of experienced hydro contractors" is the title and the description is: "As a result of the strong demand for new hydro, industry consolidation, and a lack of hydro over the past 20 years, there is a limited availability of experienced hydro contractors, which could result in less than expected number of qualified contractors being interested."

So SNC, in their report, calls this, "Concrete works slippage from baseline schedule" and the Nalcor risk is identified as: "Availability of experienced hydro contractors." Is that the same risk captured by the demand for contractors versus concrete work slippage, which perhaps relates a little more to labour force?

MR. KEAN: So two comments from – I guess, the Westney report is stated on the front top line is that all risk included in the SNC-Lavalin risk assessment had already been identified by Nalcor. It's a statement that they indicated.

So I had indicated Exhibit P-00130 talks a lot about this schedule risk exposure driven by aggressive production rates. So it is fair to say that the schedule – the DG3 QRA did, in fact – you know, is one the main drivers for the time risk analysis that – and the potential schedule delay that we were identifying at DG3 was due to the production rates. So, it's the same risk that SNC are speaking to.

As for the relationship with key risk 20, the exploration of key risk 20 of the availability of contractors and experienced contractors, that could have many implications. It could have implications of: Will you get a number of bidders – the number of bidders you think? Will they – you get the best pricing that you may wish to have? Will they have the necessary – will you get bidders that have the necessary experience? Will you get bidders that have the right means and methods?

And, then, what would be the implication of that? It might mean not having competitive bid pricing, it mean – have a contractor that have, perhaps, not the correct means and methods, or it may mean that the contractor can't demonstrate their ability to meet a production schedule.

MS. MUZYCHKA: Is that listed anywhere in the documentation so that one can determine whether the risk was properly identified?

MR. KEAN: It's talked about in the DG3 QRA, Exhibit P-00130.

MS. MUZYCHKA: Okay, can you –?

MR. KEAN: So, page 284. It really is the heart of the fundamentals as to why the statements have come about, about the concern regarding the production rates –

MS. MUZYCHKA: Okay.

MR. KEAN: – and being able to achieve a 2017 first power.

MS. MUZYCHKA: But page 284 that you're referring to is a general piece. It doesn't contain identified risks and what they each – what the scope of each risk includes.

MR. KEAN: I guess the statement, as I understood: Was the risk considered as part of the DG3 QRA.

MS. MUZYCHKA: No, I'm talking about this report now and we're trying to determine whether the risks that were identified by SNC were, in fact, identified by Nalcor. And the report at the top says all risks included had already been identified by Nalcor, and they provide a reference so that we can then look at it and see whether or not that risk, in fact, relates to the one identified by SNC.

MR. KEAN: And I think what I'm saying in response is that the risk that's been identified by SNC-Lavalin, as you've described it and as is written in the SNC-Lavalin report, is very much a factor in terms of the risk results that came out of the DG3 QRA. And what the Westney analysis revealed is that the number one driver – one of three drivers for the time risk exposure on the Muskrat Falls Project was due to the production plan, which is the heart of what SNC's risk is stating.

MS. MUZYCHKA: Okay.

MR. KEAN: So they're one in the same.

MS. MUZYCHKA: So you're saying that it was included but –

MR. KEAN: It's –

MS. MUZYCHKA: – it's not necessarily included in key risk 20.

MR. KEAN: It's –

MS. MUZYCHKA: It may be somewhere else in the document.

MR. KEAN: That would be fair to say. There's a lot of risks there in the –

MS. MUZYCHKA: Okay.

MR. KEAN: – in the spreadsheet. As I said, in the first SNC risk register that's contained in Exhibit P-00030 there's 130 – or there's 21 pages of risk alone.

MS. MUZYCHKA: Okay.

But for purposes of this report, if we were given this report to justify that the two reports contained the same risks, key risk 20 does not relate to concrete work slippage when we compare the two descriptions.

MR. KEAN: Well, I guess in the discussions in the – you know, if I look back and look at the DG3 QRA period and the period leading up to that, the concern – the root issue is having experienced hydro contractors. And some of the implications might be the inability to achieve the production plan.

MS. MUZYCHKA: What –

MR. KEAN: Likewise, if we didn't have the skilled labour, part of the implication could be the inability to achieve the production plan. So it was those risks that drove the viewpoint on the schedule risk that existed and was modelled for DG3 and what is giving, at that point in time, the lower probability of achieving a 2017 first power.

MS. MUZYCHKA: Okay.

Let's just look at 01769 at page 119, please.

CLERK: What page?

MS. MUZYCHKA: 119. So this is a strategic risk frame. So you're familiar with this document?

MR. KEAN: Yes, I am.

MS. MUZYCHKA: And this document provides the foundation of the risk details that are incorporated into the DG3 risk analysis?

MR. KEAN: That, as well as various discussions that occur in meetings and the emails that are appended to this. And –

MS. MUZYCHKA: But in terms of a formal statement of what the risk is, I understand from conversations with you that this is the foundation piece that you'd refer to –

MR. KEAN: For –

MS. MUZYCHKA: – to ensure –

MR. KEAN: – key risk –

MS. MUZYCHKA: – for a description of the risk.

MR. KEAN: For key risk 20, this is a description – excuse me – of what key risk 20 is –

MS. MUZYCHKA: Okay.

MR. KEAN: – as is, for the other registers, there's a listing of risk, of course.

MS. MUZYCHKA: And if you look at it, it does talk about "Availability of experienced hydro contractors" and it expresses the concern that, as a result of a "strong demand for new hydro, industry consolidation, and a lack of hydro over the past 20 years, there is a limited availability of experienced hydro contractors, which could result in less than expected number of qualified contractors being interested."

And then it goes on to cite other considerations: The contractor's "Willingness to bid; Ability to perform; Fair lump sum price/Transparency/Risk Premium; Level of Aggregate Guarantee; Level of Completion Risk Guarantee; Conforming Contract" and creditworthiness.

So I would suggest to you, Mr. Kean, that that really does not relate to the key risk identified by SNC of concrete work slippage from baseline schedule. They're two completely different issues, aren't they?

MR. KEAN: And –

MS. MUZYCHKA: So it could be that KR 20 is incorrectly put there –

MR. KEAN: So –

MS. MUZYCHKA: – but I don't think that you're telling us that what I just read relates to concrete work slippage from baseline schedule, are you?

MR. KEAN: Well, what I indicated to you a few moments ago, from a background perspective, some of the result of the lack of availability of experienced hydro contractors

could be – the impact of that could be inability to achieve the placement rates that would have been historically achieved on other projects.

MS. MUZYCHKA: Okay.

MR. KEAN: So, you know, whether that's the best correlation there, I'm not Westney's assurance department – quality assurance department, but what I do know is the production plan and the concerns regarding that and the impact on weather windows was a driving consideration in the DG3 QRA.

And in the DG – in Exhibit P-00130, you know, there's been – there's several emails and discussions that went back and forth between Mr. Lemay, for instance, and myself about concerns regarding the production rates and sustaining the production rates, which is directly related to and correlates to SNC's observation in their 2016 risk report. So it's – in my opinion, it's one and the same issue and the issue would've been at – it was a major item influencing the time risk results in 2012.

MS. MUZYCHKA: Okay.

Well, let's move on to SNC risk number 3, so that would be at P-01847 at page 6. And, Mr. Kean, that's at your tab 2, with the yellow Post-it. The third – it's the third line and it's: "River closure slippage from baseline schedule" and that is matched also to key risk 20.

Okay and if we turn to the SNC Report, P-01977 at page 14, which would be the next page for you, if we look at the third line in the chart: "River closure slippage from baseline schedule" is identified and then the description is: "As construction of the spillway is to be fulfilled in an 'ice-free' window, there is no float in the schedule with the preceding activities (EA release, camp, road, etc.). Any delay in these previous activities may trigger missing the diversion window which will result in a one year delay in the project schedule. Furthermore, there is also the technical risk of being unable to finish the work within the 'ice free' window timeframe."

Okay, so we'll now turn to P-00130 again and we'll look at page 159 and 60. At the bottom of

page 159 we have the R20 – and, again, I'm not going to read that because that's the same that we just reviewed which relates to the availability of experienced hydro contractors.

So are you saying or would you say that the availability of experienced hydro contractors is the same risk as river closure schedule slippage?

MR. KEAN: It's related – correlated but it's not the best correlation here in this report. If you go to – if I could take you to page 33 of that same exhibit –

MS. MUZYCHKA: Which one? 130?

MR. KEAN: Page 33 –

MS. MUZYCHKA: Okay.

MR. KEAN: – of 130. Commissioner, risk R26, which is shown near the bottom of the screen there, okay: "Spillway Construction Window." It's got a different title but it's the same identically described risk as SNC has in their risk report of 2013. It says: "As A) construction of the spillway is to be fulfilled during an 'ice-free' window, B) there is no float in schedule with predecessor activities (EA release, camp road, etc.), any delay in previous activities may trigger missing of the window which results in schedule delay."

So I think that's the same risk as stated.

MS. MUZYCHKA: Yes, it would appear to be.

MR. KEAN: So, I guess –

MS. MUZYCHKA: So Pete –

MR. KEAN: – my only point in that regard is that these registers were registers used to form the DG – the risk discussions and ranging for the DG3 QRA.

MS. MUZYCHKA: So this really should have read: Key R26 and not 20.

MR. KEAN: It would be – yes, R26 would be a better reference.

MS. MUZYCHKA: Okay.

MR. KEAN: They are related, I would suggest, but R26 is much more explicit.

MS. MUZYCHKA: Yes.

All right, let's move on to SNC risk number 7. And that is at 01847, Madam Clerk, page 6. And we're looking at your tab 3, Mr. Kean, and also, Commissioner. The Westney analysis says: "Difficulty transitioning to an integrated team project delivery model" and they've correlated it with KR 43.

MR. KEAN: And I think, as I indicated, I had provided some viewpoints on the correlation for the – those in the salmon colour –

MS. MUZYCHKA: Yes.

MR. KEAN: – just for clarity; however, I'll do my best to speak to this issue, for the Commissioner's benefit.

MS. MUZYCHKA: Yes. No and you hadn't had involvement with the ones that weren't key risks, correct?

MR. KEAN: I – no, the – I said the 7th and 9 are very high risk –

MS. MUZYCHKA: It's –

MR. KEAN: – which are, I guess, those noted in the salmon colour.

MS. MUZYCHKA: Right.

MR. KEAN: However, I will do my best to – here in the room to help the Commissioner verify it.

MS. MUZYCHKA: Well, you certainly appear to have great familiarity with the risk register, so I think that would be helpful to us.

MR. KEAN: Yes, it may take me a moment to do – to page flip them.

MS. MUZYCHKA: Correct.

Okay, so let's look at the description of what SNC has at 01977 at page 14, and it's the third section of the report. And it says – SNC

describes it as – oops, sorry, I'm in the wrong place, am I? I'm in number 7, sorry.

Page 16 – yes, okay. So SNC describes it as lack of proper – wait now. Excuse me for a moment; I might have lost my place.

THE COMMISSIONER: Okay, just take your time. I think I'm there.

MS. MUZYCHKA: Okay.

THE COMMISSIONER: Based upon the exhibit that's here, it's ID number 7. I think that's – and it's referred to Component C1: "Difficulty transitioning to an integrated team project delivery model." It's – at least it's on my –

MS. MUZYCHKA: Yes, no, I have found it. I thought I had –

THE COMMISSIONER: Okay.

MS. MUZYCHKA: – mistakenly skipped ahead.

So it states: "Lack of proper delegation of authority, leading to an unsustainable authority structure as the site construction ramps up. Decisional team more familiar with the oil and gas Industry than with heavy civil and hydro works, leading to mismatched processes and procedures, as well as to less than optimal value-plus decisions."

And if we go to key risk 43 in Exhibit 00130 at page 171, it says the risk is – quote – "Challenges attracting and retaining quality required Owner's team resources as a result of competing local mega-projects."

And the description is: "As a result of a number of competing mega-projects occurring locally, the Project has challenges attracting and retaining the quality ... required Owner's team resources, resulting in the inability to adequately perform the Owner's oversight/management role."

Now, can you comment on whether those –

MR. KEAN: Sure.

MS. MUZYCHKA: – appear to be the same?

MR. KEAN: So I think if I were doing the correlation today, I would correlate it to three separate risks that exist at DG3 at first pass. Of course, the – I would add that at DG3, we – there wasn't a decision at transitioning to an integrated team at that point. There was some challenges occurring –

MS. MUZYCHKA: Right, but that wouldn't have been identified, the risk of –

MR. KEAN: But –

MS. MUZYCHKA: – transitioning to an IMT model because it hadn't occurred. Correct?

MR. KEAN: That's correct but the under – I guess what's more important is, if I read what's in the SNC risk description that they have today, it – the two themes are delegation of authority and decision-making, particularly as – and procedures. And they talk about in their mitigation authority matrices and key people, so that's what's in SNC's risk report.

So my – if – I guess from a correlation perspective, I would suggest that it would be best correlated, Commissioner, to three risks. Those would be key risk 1, key risk 43 and risk 156. Now, this is a very cursory – I hadn't looked at this one very closely, but I think it's – if I take you to – one of the themes there is decision-making and approvals. So that's a very prominent aspect of key risk 1 that's shown on page 146 of Exhibit 00130, Commissioner.

MS. MUZYCHKA: 141?

MR. KEAN: 146.

MS. MUZYCHKA: 146.

MR. KEAN: So this one it's all about – this is a risk that was identified very early in 2008 by Nalcor. And it talks about the aspect of decision-making. And many of – the action plan associated with this, Commissioner, was ensuring there was clear decision-making and organizational roles and responsibilities which is fundamentally the issue SNC is talking about in their risk.

And some of the outcomes of risk 1 were the creation of delegation of authority matrices, the drafting of specific management plans, and I know there's an exhibit today – I did see there – on a construction management plan. I don't know the exhibit number, but I did see it in the list. And that construction management plan does provide a – it was written in 2012. I was the lead author. It provides authority matrices and decision matrices for site teams. So again, speaking to the very issue that SNC expressed concern about.

MS. MUZYCHKA: Mm-hmm.

MR. KEAN: So my comment would be that the risk was – we were very aware of the risk, what the risk was, and we were doing a lot of work on business processes and decision and authority matrices to address the risk.

MS. MUZYCHKA: But not that specific risk.

MR. KEAN: Yes.

MS. MUZYCHKA: So –

MR. KEAN: Yes, most definitely. The – 'cause this has to deal with site activities, decision-making at the site, which is why we wrote construction management plans, which is why there was decision and authority matrices for site.

MS. MUZYCHKA: Okay.

MR. KEAN: So this was a – this drove a lot of the work pre-sanction and some of the workshops we had with SNC-Lavalin. Now, was there any residual exposure? Yes, but it wasn't one of those big risk items that factored in – majored in to the QRA. But the risk itself was an item that was featured prominently in the risk management activities up to that point.

So as I said, I would correlate it to three risk. Risk 43 is more – key risk 43 is about attracting the right people, no matter if they're owner's team or EPCM consultant, having the right site conditions and so on. Key risk 1 is about decision-making authority. And there's also risk R156 in the SNC register – and I can get – if you give me a patience here, I'll find the number.

So risk – on page 50. So risk 156 talks about the coordination between the SNC and Nalcor organizations in terms of the cultures and the aspects of alignment and decision-making – that’s a bit hard, not real legible, but Nalcor probably has a better quality version (inaudible) you could get.

MS. MUZYCHKA: It’s enlarged now, so I think we (inaudible) –

MR. KEAN: But it –

MS. MUZYCHKA: – better.

MR. KEAN: – the theme there is about organizational approaches, cultures, decision-making, staffing, alignment. So this was – again, that risk, as shown in the next column was ID’d in November of 2011, and I talked about a lot of those workshops yesterday – I brought up in my testimony. So I guess the theme – whether the – I guess, Commissioner, my response would be I’m not sure there’s one risk that identically corresponds to the description that SNC has made in 2013, but the underlying themes are captured across a number of risks that were available for the 2012 QRA.

MS. MUZYCHKA: Okay.

But I do think, in fairness, that the risk – and certainly when this report was prepared, the management team had – or model had transitioned from EPCM to the IMT, late 2013.

MR. KEAN: Yes.

MS. MUZYCHKA: So that was recognized as an independent risk all of its own, separate from all the other ones that you say touch on that. Because in the risks you have identified, there isn’t one specifically which suggests that there is a sea change in the management of the project. And you will agree that was a fairly significant change? Moving from SNC-Lavalin being the EPCM contract –

MR. KEAN: The –

MS. MUZYCHKA: – management to them just dealing with engineering and all those responsibilities shifting to the Nalcor team, and

that would have triggered a whole new risk profile.

MR. KEAN: Actually, I would suggest that the consequence of SNC’s performance – the risk is non-performance of an EPCM consultant. The consequence is it could mean – you could result in a transition to a different model. So the risk – a risk has materialized which was, you know, getting the A team from the EPCM consultant, which was a risk in the key risk register.

MS. MUZYCHKA: Mm-hmm.

MR. KEAN: That risk has materialized of which a consequence is you do something else. The something else is a transition to an integrated team.

MS. MUZYCHKA: Well, or it could also be to bring it up with the SNC and, you know, encourage change just without having to transition to a completely new model. There are alternatives.

MR. KEAN: I understand there’s various – but with any one alternative, there are things that need to be done with that.

MS. MUZYCHKA: Yes.

MR. KEAN: So the aspect of that – bringing it up with SNC, that will be best, you know, Mr. Power and Mr. – can speak to that – Mr. Lance Clark as they were dealing with the steering committee with SNC-Lavalin.

MS. MUZYCHKA: Okay.

But I think it’s fair to say there wasn’t a risk identified specifically in the Nalcor risk register that reflected the risk of transitioning from EPCM to integrated management team process, correct?

MR. KEAN: There is no risk with the same title, but my only comment would be when I read SNC’s 2013 risk title, and I read the description, I don’t know if I’d put two of them – equate two of them together.

MS. MUZYCHKA: Okay. All right.

Let's move on to the next example, and it is at P-01847 at page 6 again. And it's the first page of tab 4 for you, Mr. Kean, and Commissioner.

The Westney analysis says, "No geotechnical data available." And it is matched to KR 23. And if we then turn to P-01977 at page 18, which is page 2 of your exhibits, the bottom line, the SNC reads: "As no geotechnical investigations have been performed in the" – transmission line right of way – "TL ROW, adverse conditions could be discovered during construction leading to logistical challenges, cost overruns and delays."

The geotech risk is – that SNC appears to be focused here is on the transmission line geotechnical risk, correct?

MR. KEAN: This particular risk description is around transmission, yes.

MS. MUZYCHKA: Okay.

And then if we look at P-00130, at page 161, at R23. It says, "Site conditions worse than geotechnical baseline."

And then the description is: "As a result of geotechnical and design uncertainties at Muskrat Falls, scope increases due to increased civil work scopes, results in added cost and schedule slippage."

So, this risk appears to relate to the civil works and not the transmission line.

MR. KEAN: Risk – the risk – it prominently – primarily relates to that. You are correct. However, risk 23 does – it does get into more details as time went by on the transmission-related risk.

And I would also like to add –

MS. MUZYCHKA: When you say – sorry, when you say as time went by, you –

MR. KEAN: Right, and these risks –

MS. MUZYCHKA: – mean subsequent to the – this particular document being prepared?

MR. KEAN: No, this – so just for clarity, page 161, these Key Risk Status Report, is basically a – it's the same data that's shown in the risk frame that was shown in Exhibit P-01769.

MS. MUZYCHKA: Yes.

MR. KEAN: It's the same data. It's a database. It's just pulling various fields to present certain things, just so you'd have that clarity.

MS. MUZYCHKA: Yes.

No, but you said as we went on in time.

MR. KEAN: The risk was initially identified in 2008, I believe.

MS. MUZYCHKA: Yes.

MR. KEAN: This key risk.

It was initially concerned with geotechnical at a power plant. As it – as we got into discussion of risks, of course, we were talking more about the converters and the switchyards.

MS. MUZYCHKA: Mm-hmm.

MR. KEAN: And to a peripheral, it was somewhat about the transmission line. However, there in the SNC risk report, risk register for the DG3 risk analysis, I'd like to bring your attention to page 46 of Exhibit P-00130. If you go down there it is risk 151 – just up a little bit – it says, geotechnical claims is the title, but it's really driven around the aspect of the site conditions and geotechnical unforeseen site conditions that could be discovered along the right-of-way.

MS. MUZYCHKA: Okay. So –

MR. KEAN: So, it's the same fundamental issue. And even looking at the (inaudible) response strategy, it's the same fundamental issue that we were talking about at that particular point in time. Again, that was a risk ID the 10th of November 2011.

And I do note in this, it does say something there very relevant to – or your point you brought up. It says risk ID'd the Commissioner at November – at workshop of the 10th of November. At the

back end of that statement it says: “Drilling program for DC is acceptable even before the EA release, for AC is not possible.”

I think that should’ve said: Drilling program for AC is acceptable before EA release, but for DC is not possible. A bit of context to that discussion we had about being able to undertake geotechnical drilling programs in the – while the environmental assessment release was underway for the Labrador-Island Transmission Link, which is a point you brought up earlier to me.

MS. MUZYCHKA: Okay.

MR. KEAN: So, my statement would be that this risk was already included in the DG3 risk analysis. So, it’s not a new risk.

MS. MUZYCHKA: No, but the correlation to KR 23, then, is not correct.

MR. KEAN: Well, as I said, I didn’t do Westney’s quality assurance check. I think it would’ve been useful to have a more fulsome discussion around these and include a more – more references.

MS. MUZYCHKA: Right. And I understand –

MR. KEAN: Maybe that’s something Nalcor can provide.

MS. MUZYCHKA: Okay.

So, we turn to the last exhibit, or last example. I’d like to have five of your exhibit, Mr. Kean and Commissioner. This is SNC risk 49. We are at P-01847, page 7. And under the Westney analysis it says: “Underestimating workforce required to accomplish project” is the same as KR 24.

And now if we look to the SNC report, Madam Clerk, 1977 at page 23; SNC describes it as: considering problems with early works and schedule crunching to make up for lost time, we could expect to have – to increase manpower from 1,500 to 2,500 at certain point to ensure work progress.

MR. KEAN: Could you – could we just look – I know it does state as their further explanation of

that risk, it just says prepare campsite. It’s all about camp sizing, I interpret this risk to mean.

MS. MUZYCHKA: You do.

MR. KEAN: Well, just reading from the information that SNC offers in their risk report. Again, they would be able to provide better clarity, but if I just read across there it talks about camp, prepare camp site, be able to react quickly. So, I’m assuming – I’m just making the assumption this is about camp size.

MS. MUZYCHKA: Okay. But it also suggests increase in cost when you have to increase manpower.

MR. KEAN: It’s a – I don’t know what the basis of that – it doesn’t state what the impact of the risk would be. For instance, is the cost impact that you’re having to add additional camp capacity? I don’t know. SNC would be able to advise what they meant and what the cost was inferring to.

MS. MUZYCHKA: Okay.

MR. KEAN: But I would only – I could only include where they make reference to camps, it’s regarding monies to be spent for camp capacity.

MS. MUZYCHKA: So it’s an increase in cost for accommodating an extra thousand or two thousand – an extra thousand workers.

MR. KEAN: Yes.

MS. MUZYCHKA: Okay.

Well, let’s look at risk 24 on the next page from the Nalcor DG3 assessment, and it’s entitled: “Availability and retention of skilled construction labour.” And the description is: “As a result of competition from other provinces (Alberta), the Project may have challenges recruiting and retaining skilled, experienced trades, resulting in poor productivity, cost growth and schedule slippage.”

Then when you read the risk response plan, it talks about: “Recognize competition threat for labour and proactively manage.” – make the work site appealing; actively recruit, et cetera.

So, that's a little different than the risk that's identified by SNC which relates to the need to have increased accommodations.

MR. KEAN: Yeah. If I could, I think just going by the information SNC presents, which is very limited –

MS. MUZYCHKA: Yes.

MR. KEAN: – you would have to increase camp size because you need more workforce.

MS. MUZYCHKA: Sure.

MR. KEAN: Correct. You normally would need more workforce because you either underestimated the workforce or productivity concerns, or what have you.

MS. MUZYCHKA: So you would calculate that risk. You identify it and you would say, okay, if we happen to need a thousand more beds at camp –

MR. KEAN: That's right.

MS. MUZYCHKA: – that's going to cost us X-number of dollars more. The probability of that risk is x and then you would probably put in a reserve for that eventuality if that occurred. Am I correct?

MR. KEAN: That's – that's one of the aspects of that, yes.

MS. MUZYCHKA: Okay.

MR. KEAN: And I do believe that, in Exhibit P-00130, page 32, there is a risk that it talks about accommodations capacity. So risk 5 at the top, Commissioner, speaks to the aspect of accommodations capacity. About, you know, the aspect of being able to need extra accommodations, and looking at ways to be able to support work at initial part of construction, which, of course, would be available. And if I look at the addressing strategy, it's really developing an alternate plan for temporary accommodations.

MS. MUZYCHKA: Right, but that's referring to the initial –

MR. KEAN: Of course.

MS. MUZYCHKA: – part of the project –

MR. KEAN: But – but –

MS. MUZYCHKA: – when you're looking at between 150 and 500 workers. We're talking about here is a different risk that's identified, which is up to 1,000 more workers may be required and we need to make sure we're ready for that accommodation aspect.

MR. KEAN: So, it says – I think the SNC report said 1,500 to 2,500, potential. So the aspect of this, you are preparing those accommodations early. We're already providing capacity for 500 people in town.

MS. MUZYCHKA: Mm-hmm.

MR. KEAN: Beyond what was on site, beyond the 1,800 beds that were on site at this point in time. We had 500 beds in town. So that was 2,300 beds available. So I don't know whether that was actually a valid risk consideration, because SNC said you may need up to 2,500. We had 2,300 at that point in time. That's what the DG3 estimate premise was. So not only where you had a 1,500 man/person main camp on site, you had a 300-person starter camp on site, plus you had 500 beds in town that we had secured for the early works.

MS. MUZYCHKA: Okay.

MR. KEAN: So, the total is 2,300. And I believe at the end of the day, of course accommodations, you know, there were a lot of people staying in town.

MS. MUZYCHKA: But I think, you know, the difference between the SNC report and the DG3 report is that SNC had the benefit of time on their analysis in the sense that, they had already identified the problems, and in the SNC description, they talk about considering problems with early works and schedule crunching to make up for lost time. So, they're already – this isn't back before construction was undertaken. This actually knows that we've had difficulties and now we need to make the following adjustments.

So, while it may have been identified in a general way, in the DG3 Nalcor assessment, it certainly shows – and not just in this particular example, but in the others, that as the project was underway into its first year, there were specific risks identified that had specific risk factors associated that would've called for specific mitigation factors that you couldn't possibly have been aware of in 2012 when the previous report – or whatever the date was.

MR. KEAN: Actually, in the case of this particular situation, the design basis was to go up to far exceed the planned occupation at site from a utilities perspective for all the wells, the water system, the sewage system. And as – you know, as – what occurred, I think, in about 2016, Nalcor secured an extra 500 to 800 beds and brought into site again. So it brought that site size up much larger.

So from a design perspective, in 2012 and the execution in 2013, the utilities and system were already in there, Commissioner. And –

MS. MUZYCHKA: But I think –

MR. KEAN: – if I may, you know, so SNC are stating here they have – there's been some challenges observed during the early works. Well, the time risk analysis that was undertaken for the DG3 QRA clearly identifies that the early works work was a schedule risk. And that was one of the items that became of concern to allow the bulk excavation contractor to start. And if that contractor didn't start early, Commissioner, there was a concern about missing critical weather windows.

MS. MUZYCHKA: Okay but I think the difference again, with respect, is that a year or two later, when SNC prepares its risk register or risk assessment, it has the benefit of – knowledge of what's already transpired and it has identified more precisely certain key risks that they feel will cause cost implications in their report.

And it's not to say that Nalcor had not considered them, but they would have considered them on a broader base because, otherwise, why would you want – why is it considered prudent to be doing QRAs on a periodic basis if not to assess where you are and

with the knowledge that you have acquired to that point.

MR. KEAN: So putting the – you know, putting the QRA aspect aside, risk management is not about QRAs. QRA is looking at the overall cost implication from a funding decision. Risk management is identifying risk, looking at the impact of those on your project and trying to determine how you best respond to those.

And I know yesterday we went through a risk philosophy where I talked about four ways of responding to a risk, about transferring or allocating, you know, about mitigation and so on. I had talked about some of those yesterday, so, you know, they're – the project risk register work was being kept alive. They were – you know, these risks that were occurring as SNC are saying now – we got a delay in the early works – there's an implication that that was a prominent issue that was featured in various briefing decks and would be – it should be in the project monthly report that risk.

MS. MUZYCHKA: Mm-hmm.

MR. KEAN: Because this risk is a new risk for 2013 because you're talking about events that have transpired since sanction.

MS. MUZYCHKA: Yes.

MR. KEAN: And I would say that it should be in the project risk reports and it would be factored into presentations provided to, you know, various decision-makers. It may actually have been something that triggered a project change notice to acquire additional accommodations.

So these aren't – these were not surprising issues, these were issues that were either identified prior to DG3 – and sometimes years before – and being worked heavily. Sure, they would – the issue would evolve over time, which is natural with the evolution of the project and the characteristics of that issue would change, but the underlying – you know, the general theme was being captured and drove a lot of the work that was occurring. And that's why I often use the phrase risk-informed decision-making about understanding what the risks are and using it to make the best decisions possible.

MS. MUZYCHKA: Right, which would mean that in 2016 it might have been of value to you and the project management team to have reviewed a report that SNC had prepared –

MR. KEAN: In 2016?

MS. MUZYCHKA: – when it came –

MR. KEAN: Well, in –

MS. MUZYCHKA: – to the knowledge of –

MR. KEAN: In –

MS. MUZYCHKA: – Nalcor.

MR. KEAN: – 2016, the detailed – there was further quantitative risk assessments done. The risk register system had taken – had come up three or four levels since then from a quality perspective.

MS. MUZYCHKA: Mmm.

MR. KEAN: You know, the amount of activity engagement was hundreds of risk, all sorts of focus on action tracking and, you know, so I felt pretty comfortable at that point in time of where things were. But, again, as I said, in 2016, I found out about this from *The Telegram* that this report had existed.

MS. MUZYCHKA: That the Westney report existed.

MR. KEAN: No, you said the SNC report.

MS. MUZYCHKA: The SNC. So that was the first time you heard of it.

MR. KEAN: That's – yes.

MS. MUZYCHKA: Okay.

All right, so – and I also noticed that SNC had assigned values in terms of dollars as to the risk exposure. And if you look at the top of – sorry, page – the first exhibit we looked at – well, it's on every one that relates to SNC, 01977. It refers to a risk register exposure of \$2.4 billion Canadian.

MR. KEAN: I'm –

MS. MUZYCHKA: The numbers that were assigned by Nalcor back in 2012, DG3, didn't come to those numbers, did they? This were before mitigation?

MR. KEAN: I don't know – well, I would – well, first of all, the SNC \$2.4 billion – of course, in 2013 there was a lot of new information.

MS. MUZYCHKA: Yes.

MR. KEAN: Of course. Things are – it's a year later. The SNC \$2.4 billion, from reading their report, they're – it's not a probabilistic analysis for one. So we've talked a lot about P-factors in this Inquiry – a lot – and but I do note that the SNC report is no probabilistic now – analysis at all. So I don't know if that would have been a P100, a P1, a P2, P50 – I have no idea.

MS. MUZYCHKA: No but they've identified a number of risks that could have the potential to have that value, I guess –

MR. KEAN: Sure –

MS. MUZYCHKA: – is the take-away from that piece of information.

MR. KEAN: I don't – but my general point would be there I would question the \$2.4 billion.

MS. MUZYCHKA: Okay. No, fair enough and, you know, we haven't dealt with that –

MR. KEAN: That –

MS. MUZYCHKA: – issue before with you, so I'm not going to –

MR. KEAN: As I said when I started, I didn't – you know, I wasn't involved in doing all the correlation. If you'd like, I mean, we can take more time. I'll do my best for the Commissioner to –

MS. MUZYCHKA: Yeah.

No, I think the key point is that the, you know – we've taken some time here to go through this report and we've cross-referenced it with the Nalcor register and with the – or, you know, the SNC report and we've gone back and even

looked at the strategic risk frame. And the key risk factors that were identified in the Westney report do not give someone enough information, on the face of that document, to be able to make an assessment that, in fact, all the risks that were included in SNC-Lavalin's risk report were, in fact, already identified by Nalcor. Would you agree with that?

MR. KEAN: Well, my – I would assume there are – there is further background information that could be provided to provide clarity of things –

MS. MUZYCHKA: Yes.

MR. KEAN: – on the cross-reference. Hopefully, some of the clarity that I provided to the Commissioner helps provide a level of confidence that it's one and the same risk.

MS. MUZYCHKA: Right. But if someone had –

MR. KEAN: That –

MS. MUZYCHKA: – said I have this report or had handed you this report, the Westney report, and said they're both the same, you wouldn't be able to tell yourself whether or not that was, in fact, the case, based on the information that's contained.

MR. KEAN: No. I assume a discussion would occur with that presentation. You know, there might be other supplementary documents or notes that exist with that.

MS. MUZYCHKA: And if you were trying to determine whether the SNC report – let's put aside the Westney report for a moment. If you were given the SNC report or – to review, it would take you some time to review it and cross-reference it with the Nalcor risk review in order to make that determination that these were all covered in the same fashion.

MR. KEAN: It would, but I guess the key in that regard, you know, it's coming from the project risk consultant, Westney, who were involved and had awareness of the risks. So, you know, they're a very reputable firm. Nalcor would have given them input into this correlation.

MS. MUZYCHKA: Okay.

MR. KEAN: So –

MS. MUZYCHKA: But it wouldn't have been – if Mr. Lemay had offered – or Béchard, sorry – had offered you the report and you skimmed it, this – I'm talking about now the SNC report of 2013 – you wouldn't be able to tell at a glance whether or not all of the risks that they had referred to were in fact the same as what Nalcor had considered?

MR. KEAN: I would expect at that time – of course, my knowledge, personally, at that point in time, would've been much more contemporaneous to the issues at hand. So my awareness of the – you know, all the things would've been a lot tighter than what it is now. I've left this for years.

MS. MUZYCHKA: Yes. No, I understand, but I –

MR. KEAN: You know, so at 2013, I mean, I would've been pretty switched on as to –

MS. MUZYCHKA: Yeah.

MR. KEAN: – knowing what was occurring and what wasn't –

MS. MUZYCHKA: But someone like Paul Harrington, for example, if he were handed the SNC report, would he be able to say, following a cursory review, that's the same, it's all covered, there's nothing new here?

MR. KEAN: Well, I think that's best asked to Mr. Harrington.

MS. MUZYCHKA: Yes, but I – you are the experienced individual with risk, and I'm asking you –

MR. KEAN: Hmm.

MS. MUZYCHKA: – if you think that he would have the knowledge.

MR. KEAN: Mr. Harrington was very active in risk management work.

MS. MUZYCHKA: Okay.

MR. KEAN: I can assure you of that. So as to – you know, give comment on – to Mr. Harrington’s memory, I can’t speak to that. But I know he was very active in the DG3 risk report, as he was for the other work before –

MS. MUZYCHKA: Okay.

MR. KEAN: – and attended the risk workshops and the meetings hosted by SNC-Lavalin in 2011, the risks workshops down at, you know, the GEO CENTRE, the four-day session and at –

MS. MUZYCHKA: Sure.

MR. KEAN: – you know, various hotels and so on.

MS. MUZYCHKA: But I think if – it’s fair to say that if Mr. Harrington – or anyone, really – were handed – or not even handed, because nobody wanted to take the report – were told there is a risk report and they had a cursory glance at it that a further, more detailed review would be required in order to determine whether, in fact, there was anything new that merited consideration, correct?

MR. KEAN: Well, I guess, I don’t know how much Mr. Harrington – was this a day workshop –?

MS. MUZYCHKA: No, but I’m asking you.

MR. KEAN: I think it’s a question best asked to Mr. Harrington.

MS. MUZYCHKA: Yeah.

MR. KEAN: I can’t presume to walk in Mr. Harrington’s shoes.

MS. MUZYCHKA: No, but you have knowledge of risk, and you know that there are many different risks that were identified by Nalcor. And all I’m saying to you, Mr. Kean, is that being told about a risk report and dismissing it – or just skimming it, even – wouldn’t give you sufficient time or information to allow you to make a detailed analysis, to be able to rule out that all risks, in fact, were considered by Nalcor at its DG3 estimate.

MR. KEAN: I –

MS. MUZYCHKA: That’s all I’m saying.

MR. KEAN: I think –

MS. MUZYCHKA: It’s a question of time.

MR. KEAN: I don’t think it takes very long to read the descriptions and have a good feel. Mr. Harrington – any manager there, their finger would be on the pulse. They know the issues. Mr. Harrington’s responsible for all these components. He has various managers reporting to him on the issues, production rates, how things are going – monthly reports he would be reviewing, which has the – remember, we have a monthly report that has the risks listed in them –

MS. MUZYCHKA: Sure.

MR. KEAN: – and he would be signing that off. So his awareness of the risks that exist on the project and what we’re facing would be excellent. So, you know, he would, in very short order, be able to look at an SNC risk report and, yes, I would expect, be able to make, you know, a business assessment –

MS. MUZYCHKA: Okay.

MR. KEAN: – of whether he thinks the items are the same items or not.

MS. MUZYCHKA: That would be a cursory assessment, though, I’d suggest.

MR. KEAN: Well, again, how long did he – you know, was the meeting? Was it a day session that he had? Mr. Harrington can provide that clarity, I can’t.

MS. MUZYCHKA: All right. Well, I’ll leave it at that.

Okay, that’s all the questions I have for Mr. Kean.

THE COMMISSIONER: Okay.

We’ll take our morning break here now, and then we’ll come back and start our cross-examination and we’ll be starting first with the province.

CLERK: All rise.

Recess

CLERK: Please be seated.

THE COMMISSIONER: All right.

Cross-examination. Province of Newfoundland and Labrador.

MR. RALPH: No questions, Commissioner.

THE COMMISSIONER: Okay.

Concerned Citizens Coalition.

MR. BUDDEN: Good morning, Mr. Kean.

MR. KEAN: Good morning, Mr. Budden.

MR. BUDDEN: Microphone's not on.

MS. MUZYCHKA: Oh, let me turn mine off.

MR. BUDDEN: Here we go.

Good morning, Mr. Kean.

As you recall, no doubt, from Phase 1, my name is Geoff Budden. I'm counsel for the Concerned Citizens Coalition, which, as you probably also recall – the coalition is a group of individuals who for many years have been observers and critics of the Muskrat Falls Project.

So I've got a series of questions for you this morning. And we're going to start with the Grant Thornton report, which is tab – for you that would be binder 3, tab 56, and for the rest of us, that's Exhibit P-01677, Madam Clerk, and perhaps we could begin with page 42.

When you get there, Mr. Kean, to page 42, could you read into the record line 7 to 13 for us?

MR. KEAN: Okay, starting on line 7: "The CT0327 package budget was developed with limited geotechnical data due to the environmental assessment restrictions. Jason Kean, the former Nalcor Deputy General Project Manager explained '*We didn't have any geotechnical data because we weren't allowed under the environmental assessment process. We could fly a little mini Kubota excavator on a helicopter to dig down one meter in a few*

locations. That was" – excuse me – "*That was it because it would be deemed that we would start construction if we were to have entered into a lot of these remote locations. So that challenged that from an estimating perspective, we had to make assumptions based on mapping and geotechnical data.*"

MR. BUDDEN: Thank you. So your understanding was – and the quote that I'm sort of particularly interested in is – quote – "*We didn't have any geotechnical data because we weren't allowed under the environmental assessment process.*"

So firstly, I guess, who or what were you relying on for that interpretation of the environmental assessment process, Mr. Kean?

MR. KEAN: So as I went into some clarity yesterday, it wasn't as much being allowed, I guess, for one. I think I attempted to clarify that. It was from a perspective of collecting additional geotechnical data as we had already collected an amount of data in 2008 and 2009, which did involve the test pitting in the interior –

MR. BUDDEN: Mmm.

MR. KEAN: – of Labrador using the small Kubota that I mentioned here.

It wasn't as much being allowed, but it was – as I understand it, the risk associated with the project-splitting challenge that I was being made – you know, the management team were being made aware of. So Nalcor, as it's been pointed out, could seek the application or request for permits to do – for do certain surveys, geotechnical surveys, as was obtained in other locations on the LIL.

But in the context of the interior of Labrador, you know, the intrusive nature of clearing and access construction in order to do more test pitting with larger machines and drilling rigs meant that, you know, you were – it was a fairly intrusive process as I understand the discussions, as I recall, and that was deemed to be – come with a lot of risk from a stakeholder perspective concerning, you know, the – there was a lot of, you know, stakeholder concerns, particularly regarding the Labrador-Island Link, as I recall. So there was –

MR. BUDDEN: Okay.

MR. KEAN: – some legal concerns and risks around project splitting, but I was on the peripheral of that. I was just made aware of it.

MR. BUDDEN: Sure.

I'm gonna ask you a question or two about it, but let's start there. Who made you aware of this, Mr. Kean? Do you recall?

MR. KEAN: That would have – I would have been made aware of that by Mr. Harrington and Mr. Bennett, probably in some regular meetings.

MR. BUDDEN: Sure.

MR. KEAN: This would have been something that would have been occurring not just one – it would have been an ongoing theme for a period of time.

MR. BUDDEN: Sure.

So despite the fact that you were the manager from 2013 – of course, this decision would have been taking place prior to 2013, wouldn't it?

MR. KEAN: (Inaudible.)

MR. BUDDEN: The decision not to – it would have been a pre-sanction decision.

MR. KEAN: This would have been a 2011 –

MR. BUDDEN: Sure.

MR. KEAN: – 2012-type timeline, yes.

MR. BUDDEN: So the decision, essentially, was to go into the DG3 process without the geotechnical workup that – perhaps would have been ideal to go with a desktop workup instead.

MR. KEAN: Well, I think, as I, you know, attempted to clarify the desktop work, it was based upon the 2008-2009 program that gave the design information for the family of foundations that we have.

MR. BUDDEN: Yes.

MR. KEAN: And it did follow the same approach as was used on the AC transmission line between Muskrat and Churchill, as well as the other lines that were being – or had been historically constructed or had been constructed since in the province. So it was not an unusual approach. But the variability on the DC line was much different than anyone anticipated. And I think I gave an example yesterday as whereby you may have one self-supporting tower that has four legs, and we saw such variability that not all legs had the same foundation type. You had – because of the foundation conditions, so –

MR. BUDDEN: Sure, we'll get into all that in just a moment –

MR. KEAN: (Inaudible.)

MR. BUDDEN: – but just getting back. I guess when you say there "*We didn't have any geotechnical data because we weren't allowed under the environmental assessment process,*" what in fact you're saying, if I understand you correctly, is such approval wasn't sought? Like, you didn't seek permission through any kind of environmental process to go in there?

MR. KEAN: I would not be able to confirm whether any approval was sought or not. I think that's best – Mr. Bennett would certainly be aware of any requests made therein 'cause he was stewarding, I guess. The environmental manager had a direct linkage there with him.

MR. BUDDEN: Sure, but your understanding, at least, was the type of environmental assessment process approval that would've been required to go in and do the fieldwork simply hadn't been obtained.

MR. KEAN: Well, I'm not – I wasn't totally familiar with all the technicalities as to what permits or what screening studies or anything. I just knew that I was made aware that it came with some challenges and –

MR. BUDDEN: Okay.

MR. KEAN: – and it was a decision made by Nalcor, I guess, that we would not pursue that.

MR. BUDDEN: And –

MR. KEAN: Mr. Bennett can provide more colour around that.

MR. BUDDEN: Oh yes, and we'll get to him, but since you're the one who made the quote that was – that made it into the Grant Thornton report, I am going to push it a little bit further with you.

So again, as I understand it, the reason why this environmental assessment process wasn't pursued was because it would have involved stakeholder submissions, perhaps some objections. It would've caused delays and further work at that pre-DG3 stage. Would that be correct?

MR. KEAN: I guess it – what I understood was the broader risk on a – against the two EAs that were under way and some aspects of project splitting challenge. You know, there are – certainly Nalcor would have better clarity on what that meant, as, you know, concurrently there was application and there was geotechnical drilling in, let's say, more brownfield locations in, let's say –

MR. BUDDEN: Mm-hmm.

MR. KEAN: – the Strait of Belle Isle crossings and in the switchyards at Soldiers Pond, as an example, versus, let's say, more virgin interior Labrador. So the actual particulars from a permitting and so on, I really can't give you much insight, only that I knew generally that this was an issue. And of course, in retrospect, you know, could you have done more, would that have given you a greater uncertainty, and I – and sometimes I have asked my own self that. And the field variability and the conditions starts to make me wonder would it have made any difference, to be honest.

MR. BUDDEN: Okay. But when you guys are going into wilderness, essentially, you are going into areas that there've been no lines laid there before, there are no roads. So I would suggest it is hardly surprising that you may encounter unknown, unexpected conditions like that – that shouldn't have been a shock.

MR. KEAN: Of course, there would be uncertainty, but I – you know, I think what is very important, in context-wise, is that the first,

you know, 140 kilometres of the transmission line in Labrador, leading from Muskrat Falls, largely parallels the recently completed Trans-Labrador Highway that had been just completed in that section, not too long before. So, of course, that was, you know, the conditions, the sub-surface conditions in that area, there was a lot more known about that, at that point and time. And that was the area that we had some of the greatest challenges in.

MR. BUDDEN: Hmm.

MR. KEAN: So –

MR. BUDDEN: Then you get the Long Range Mountains and other areas where you also experience a lot of challenges.

MR. KEAN: Not from a geotechnical prospective and a – very important, too, to point out is that Long Range Mountains is largely rock, as we know. So, you know, one thing about visible rock, it's predictable. It might be – present challenges from constructability, but it doesn't present challenges from predictability of what foundation or what road building conditions you may have. It's more about – when you see exposed dirt when it's not rock, when you see dirt, there is uncertainty as to how far that dirt is down, what that dirt looks like under – you know, what the quality of that dirt might be, you know, is there a bog underneath certain dirt covering should you find rock down at a certain depth?

And it's a – it something that comes with a lot of uncertainty, and I would say to you, from the data and the experience in Labrador, the section of line leading Muskrat Falls for the first couple hundred kilometres was where the greatest technical challenges and uncertainty exist across the entire transmission line. Across the entire 1,100 kilometres, the first 200 kilometres is where the greatest challenges were, the greatest amount of uncertainty.

MR. BUDDEN: Madam Clerk, could you perhaps bring us to page 47 of the same exhibit. And when we get there, I am just going to read you a short section from that and ask for your comment on it. Page 47.

So, beginning at line 5, if you wanna follow along with me, Mr. Kean, and, again, I am quoting Grant Thornton, quote: "We asked Williams Engineering to review the transmission line geotechnical investigations. They concluded that: *'The limitations stated in this document indicate that very little field data was available to accurately calculate the foundation design parameters for each transmission tower. In some cases, no data was available at all . . . Best practice is to attend each tower location and complete a minimum of one borehole per tower location. Depending on soil conditions, a site investigation might include an alternate investigation method such as a test pit (digging a hole), confirmation of bedrock conditions, or other appropriate testing techniques.'*"

So firstly, is there anything in that brief passage, Mr. Kean, that you would disagree with, take issue with?

MR. KEAN: Yes, there are quite a few things, actually.

MR. BUDDEN: Okay. Well, take (inaudible).

MR. KEAN: I'll provide as much clarity as I can, Mr. Budden.

MR. BUDDEN: Okay.

MR. KEAN: So it first states that – this talks about the – the limitations in this document indicate very little field data was available to accurately calculate the foundation design parameters. That's not correct. The information that was gathered in the 2008 field program provided all the design information. Nothing came out of the field, to influence the design of the grillage foundation or the rock foundation.

So what occurred was, in 2008, as is typical practice, you collect general soil data to get – to design a family of foundations, be it a – we had rock –

MR. BUDDEN: Mm-hmm.

MR. KEAN: – deep rock, surface rock and intermediate rock. Then we had grillage foundation that had – was designed for different soil strength.

So those designs and that material was procured. What becomes the uncertainty is the actual site-by-site location as to the application – which foundation goes in which location.

So from a – so just to circle back, so the first statement Williams is making is not accurate because the information did exist to give the foundation family – design of the foundation family, which is standard in engineering transmission projects.

MR. BUDDEN: Just to stop you there for a second. So the – what you're essentially saying is that, I guess, no one knew – to carry the analogy, no one knew members were added to the family, but you wouldn't dispute that the ratio between different foundation types change significantly when you got into the field.

MR. KEAN: No, I'm not disputing that. That's factual.

MR. BUDDEN: Okay, fair enough.

MR. KEAN: Yes, very much so.

MR. BUDDEN: All right, carry on.

MR. KEAN: They also go on to say: "Best practice is to attend each tower location and complete a minimum of one borehole per tower location." So assuming that – okay, I'm just interpreting that that would occur following the environmental assessment release. We just had that broader discussion about when we could do things or not.

So we – during our negotiations on the AC package with Valard, Valard said they would only do boreholes on an exception cases where it wasn't suitable to install a rock foundation or a grillage foundation. And that's – so you needed to install – if one of those foundations wouldn't work, you would have to collect geotechnical data and install pile, either a micro or an H-Pile. And that's exactly what was done on the H-Pile – on the AC program, and that was carried over to the DC program.

So, from a confidence in the actual installed foundation – it's the right installed foundation you had. For those questionable locations, you actually did do a borehole. Yes, that didn't exist

prior to sanction and prior to the DG3 estimate, for the reasons I had explained.

It's also very important to know or recognize that the cost to install a grillage foundation on a tangent tower – that's the – the single mast tower that the guy wires are off – was about \$11,000. The cost to do a borehole was about \$5,000. So, I don't think it would have been prudent to say you're gonna drill a borehole for – across what was 85 – planned to be 85 per cent of the overall towers' tangents. That would have been – that would have drove up costs, unnecessarily, non-prudently.

So, Valard recognized that in their means and methods –

MR. BUDDEN: Mm-hmm.

MR. KEAN: – to say that we would be excavating, and if it's suitable to put in a grillage, we'll install a grillage. If not, we'll have to do a borehole.

MR. BUDDEN: So you –

MR. KEAN: That became the rationale for the need to do geotechnical boreholes.

MR. BUDDEN: Sure. So, you would take issue when – with this assertion as to what best practices would involve.

MR. KEAN: Yes, I would.

MR. BUDDEN: Okay. Fair enough.

MR. KEAN: And thirdly, the aspect of taking a test pit – so, to confirm bedrock conditions. That, actually, was done, let's say, on the AC ahead of construction, and eventually became the standard practice on the DC. And one very important point to note is that you cannot dig at the individual tower location. You cannot go out ahead of construction and dig a test pit in the same location as the tower is. You have to go off the centre of the tower by an amount. And the reason for that is you could impair the ground conditions. If you can imagine, Mr. Budden, if you go to dig a hole in winter, you're actually exposing that foundation location to potential frost. You wanna protect it until the point in time you actually install the foundation.

Sure, you're digging test holes off the foundation location maybe by 10 to 20 metres.

MR. BUDDEN: Hmm.

MR. KEAN: And the variability we saw on the sub-surface locations, coming out of the first couple of hundred kilometres in Muskrat Falls in particular, was that you could dig a test pit there, but the predictability wasn't as always as good as what would – what you would expect.

MR. BUDDEN: But, you're not disputing – I mean, we've seen a Nalcor document yesterday, Exhibit -02737, where it asserts that the – relying on a desktop workup such as done here is, I think the phrase was "inherently inaccurate." You don't dispute that.

MR. KEAN: Mr. Budden, you're asking me about the quote here, first. So, I was just trying –

MR. BUDDEN: Oh, yeah. But let's move on from that, from the second –

MR. KEAN: But –

MR. BUDDEN: – and to zoom out a bit. But you're not disputing what I just said –

MR. KEAN: I first –

MR. BUDDEN: – about the inherent inaccuracy of a desktop workup. You're not disputing that.

MR. KEAN: For the Commissioner's benefit, I just wish to close the comment that I was making.

MR. BUDDEN: Okay. Fair enough.

MR. KEAN: After the first couple of hundred kilometres of transmission line in Labrador, there was a very extensive test pitting program identified and a lot of ground-truthing to identify suspect and challenging locations. That resulted in a much more idealist – detailed borehole program, okay, for those questionable locations. That started in September of 2015 and continued through 2016.

So there was an extensive – to support construction, there was an extensive test pitting program done; however, it was limited by the

ability to actually test pit on the exact tower location, okay. Those were just some methods and techniques that were implemented to help improve Valard's construction and advance things at an accelerated pace.

MR. BUDDEN: Okay.

MR. KEAN: Now, back to your aspect of – maybe you could repeat your question.

MR. BUDDEN: Sure.

I said we've seen a document yesterday, Nalcor's own document – which is Exhibit P-02737, page 5 in particular – but where there's acknowledgement that it is inherently – that a desktop workup, such as done here, is inherently inaccurate. That's the very quote. You're not disputing that, I presume.

MR. KEAN: I'm not disputing the statement that's written on the slide. No, I think the aspect of what – as we've talked a lot about accuracy in this Inquiry –

MR. BUDDEN: Yes.

MR. KEAN: What is the accuracy? This statement and the desktop studies have shown that the accuracy across each project is quite different. Why is that, I would ask?

The accuracy of the desktop study on the AC transmission done by the same folks, used by the same engineers, the same contractor did the work, was in the range of 4 and 5 per cent variance. On the DC transmission, Mr. Commissioner, we had variance that could be in the 20 per cent range. So that was quite a difference.

MR. BUDDEN: Okay.

So when you go back, to circle back to your own quote to Grant Thornton where you said: we didn't have any geotechnical data because we weren't allowed under the environmental assessment process. If you had had that data you wouldn't have been faced with the inherent inaccuracy of a desktop workup, right?

MR. KEAN: Could you repeat that last part?

MR. BUDDEN: If you had had that data, you wouldn't have been faced with the inherent inaccuracy of a desktop workup. Do you agree with me there?

MR. KEAN: Well, I look from a hindsight basis today, looking back – and if you do a pure review of the as expected versus actual conditions and the variability at each site, you will see that I don't think any level of geotechnical data – it might have improved the prediction but you still would have had a very large variance.

MR. BUDDEN: So, you're saying –

MR. KEAN: It would have increased the predictability but you still would've had a significant amount of variance, I expect.

MR. BUDDEN: Okay. But surely you're not suggesting that the project wouldn't have had, yeah, DG3 – if there had been such a workup done, there wouldn't have been a more accurate costing of the DC transmission line. You're not denying that?

MR. KEAN: No, but I would suggest to you, Mr. Budden, is that let's just step back and think about the location. You're in the interior of Labrador. It's very evident from other exhibits given in this Inquiry that cost and effort to build an access through the interior of Labrador was challenging.

So, would it have been prudent to expect us to construct a pioneer road, prior to project sanction, through the interior of Labrador to collect further test pitting when a decision regarding whether the sanction would occur was uncertain? That effort may have cost an extra \$100 million.

MR. BUDDEN: \$100 million?

MR. KEAN: It may have. Building the road through Labrador cost over 200. So, you know, it would have been a sizable piece of work.

MR. BUDDEN: So you're saying it would have cost up to \$100 million to do a proper geotechnical assessment on just the Labrador section of the DC line?

MR. KEAN: I can't say with any –

MR. BUDDEN: Is that your evidence?

MR. KEAN: – definitive. What I'm saying, Mr. Budden, it would have come with a sizable effort, Mr. Commissioner, to actually undertake a detailed test pitting through the depth of the interior of Labrador.

MR. BUDDEN: Mm-hmm.

MR. KEAN: And it's just – because in – the nature of logistic location. The locations and the logistical challenge of getting there. So what that would have cost, I would not be able to say. Let's just say, I just look at it – it's a big program.

MR. BUDDEN: Yeah.

Well, I'm a little puzzled, because yesterday when you were asked by Ms. Muzychka, and this was – I'm just reading from the transcript we were provided last night, and this is a rough transcript, but the question was: Why wouldn't there have been an environmental assessment done? And you – you didn't say anything about cost. You talked about the same thing, that you were informed that there was concern about the splitting of – project splitting challenge and so forth. So, which is it?

MR. KEAN: Now, first and foremost, is the project splitting challenge.

MR. BUDDEN: Okay.

MR. KEAN: I just said – you asked me the practicalities of actually doing the program.

MR. BUDDEN: Okay. And the project splitting challenge, I would suggest to you, is really a delay issue, isn't it?

MR. KEAN: I don't know. To be honest, that would be something that is best – would have to be assessed, I guess, by – Mr. Bennett can probably answer that. You know, would it mean doing the analysis or deferring the analysis until the project is released from environmental assessment? Maybe.

MR. BUDDEN: Okay.

MR. KEAN: That's something that could –

MR. BUDDEN: And I guess just to tie it all together. Is it just bad luck that Nalcor, when they actually went to build the – or Valard, when they went to build the thing just the geotechnical conditions were worse than had been anticipated from the desktop? Is that all it is, just bad luck?

MR. KEAN: I don't consider it bad luck, no.

MR. BUDDEN: That conditions were worse, not better, but worse?

MR. KEAN: There's no doubt that the conditions that were observed did not align with the predictions.

MR. BUDDEN: Yes, yeah. And the predictions themselves hadn't been informed by the degree of on-the-ground geotechnical assessment that you would've wished for.

MR. KEAN: Predictions that were utilized for the Labrador-Island Transmission Link geotechnical baseline, I think were aligned with the data collection that had been done, I think. You know, we had 150 bore – or test pits, I think, or 110 – I can't remember the number right off, but it was quite a few test pits, a lot of bog probes, a lot of, you know, rock strength drilling and so on –

MR. BUDDEN: Mm-hmm.

MR. KEAN: – that was undertaken across the line corridor in 2008 and '09.

MR. BUDDEN: The AC line from Muskrat Falls back to Churchill Falls, I think your evidence yesterday was that – while I suppose in some ways it's comparable, that was really a completely different beast, wasn't it? It was following an existing right-of-way.

MR. KEAN: It was in close proximity to an existing right-of-way.

MR. BUDDEN: Yes, and so it wasn't the – sort of the uncharted territory that the DC line was being run through.

MR. KEAN: No, but it did go through areas, perhaps, with the most challenging geotechnical

issues on the project, because the area around Gull Island had quite a deep pile because of the nature of the clay and so on. So it was probably some of the most challenging –

MR. BUDDEN: Sure.

MR. KEAN: – but –

MR. BUDDEN: But they were known –

MR. KEAN: – but, you know, it's a different project.

MR. BUDDEN: –they were known challenges.

MR. KEAN: It's a different project.

MR. BUDDEN: Yes. And likewise, the Bay d'Espoir to Soldiers Pond line, did that not also follow an existing right-of-way?

MR. KEAN: Partially.

MR. BUDDEN: Yes. So, again, that was a different beast than what the DC line from Muskrat Falls to Soldiers Pond was.

MR. KEAN: It's a line with different characteristics.

MR. BUDDEN: And known characteristics.

MR. KEAN: Not for all of it, no.

MR. BUDDEN: But for most of it.

MR. KEAN: I don't know for certain. It would be – you'd have to look at the corridor, but it does run parallel to a good portion. I don't know what percentage.

MR. BUDDEN: Sure. But a good portion is parallel to an – the existing right-of-way that's been there since the '60s.

MR. KEAN: Yes.

MR. BUDDEN: Yeah. Sure, okay.

That particular line that was done roughly at the same time as this DC line was run from Muskrat to Soldier's Pond, that was a substantial contract

itself, wasn't it? My understanding, it was over a \$200 million contract to do that job.

MR. KEAN: I don't know the value entirely.

MR. BUDDEN: Okay.

To what degree did you familiarize yourself with that particular project? Because I would – the reason why I ask is I would've thought as the manager for the construction of this DC line that you would be aware of and knowledgeable about and interested in a parallel – somewhat parallel project being run by a sister company –

MR. KEAN: Yes.

MR. BUDDEN: – at the same time.

MR. KEAN: I was very familiar with it. The reason I say that is that it was the intentions for my team to undertake it.

MR. BUDDEN: Okay.

MR. KEAN: So all the engineering and the material procurement – the engineering, first and foremost, the field data collection, was all done by the SNC-Lavalin engineers that, you know, reported up through to me.

MR. BUDDEN: Sure.

MR. KEAN: That was all done in the same project team that did the AC transmission and the DC.

MR. BUDDEN: Yeah.

MR. KEAN: It eventually transitioned – the intention was for the project team to actually execute that line. So that would've been – it was – I was planning to – you know, we were – had taken – undertaken the engineering. We were looking to procure the material. We actually sourced the tower steel for Newfoundland and Labrador Hydro, and it was a late change, I guess you may say, that the job switched back to Newfoundland and Labrador Hydro just as they were preparing the construction tender.

MR. BUDDEN: Sure.

MR. KEAN: And what occurred was that a couple of my key team members left the Torbay Road project team office and joined the Newfoundland and Labrador Hydro team.

MR. BUDDEN: Who were they? Those individuals.

MR. KEAN: Keenan Healey, Alex Tirca.

MR. BUDDEN: Okay, sure.

And so who got that tender? Who did that work?

MR. KEAN: Forbes Brothers.

MR. BUDDEN: Pardon?

MR. KEAN: It was, I believe, Forbes Brothers.

MR. BUDDEN: Okay. You're not certain?

MR. KEAN: No, it's Forbes Brothers, yes.

MR. BUDDEN: Okay –

MR. KEAN: I didn't know if it was RS Line, their sister company. Sorry, that's why I hesitated.

MR. BUDDEN: Sure, no problem. Were they approached as a possible contractor for the DC line?

MR. KEAN: Yes, they were.

MR. BUDDEN: Okay. They weren't interested or ...?

MR. KEAN: They didn't have the capacity at that point in time. They had a – they were doing such a big program in Alberta with the Western Alberta transmission link, I think –

MR. BUDDEN: Okay, sure.

MR. KEAN: – (inaudible).

MR. BUDDEN: The – just a couple of questions I overlooked. Were any of the potential bidders for the DC line contract – were they concerned about the absence of geotechnical information? Was that raised as a concern –

MR. KEAN: No.

MR. BUDDEN: – in the bidding process?

MR. KEAN: No, it wasn't.

MR. BUDDEN: Okay, so they were aware that you guys were working from a – largely from a desktop workup?

MR. KEAN: Well, I think the key insight was that particularly in the case of the open-book negotiation with Valard, they had the ability to – with our foundation engineers – they had not only the, you know, the – they had all the information, the Amec studies available. Those things were being available through the foundation engineers, who were part – there would be working sessions to look at the foundation designs that were planned for the –

MR. BUDDEN: Sure.

MR. KEAN: – for the transmission line.

MR. BUDDEN: That's Valard, of course, who we'll get to in a second, but were any of the other bidders aware of, and if – did it get that far that they were privy to the geotechnical information?

MR. KEAN: No, through the pre-qualification and the phase 1, phase 2 evaluation, no, they did not have that information.

MR. BUDDEN: Okay, so there's no input from them one way or the other – or no feedback from them one way or the other as to the absence of a – of the fieldwork?

MR. KEAN: No, there isn't.

MR. BUDDEN: Sure. Did any of the – did anybody working with Nalcor –

THE COMMISSIONER: Just to wake us up.

MR. BUDDEN: Okay.

THE COMMISSIONER: Go ahead, Mr. Budden.

MR. BUDDEN: Was I putting us asleep? I didn't (inaudible) I was.

THE COMMISSIONER: Not at all.

MR. BUDDEN: Okay.

Did any of the Nalcor or Newfoundland Hydro people that you worked with or otherwise express to you or otherwise that you were aware of expressed concerns about going forward at DG3 without the geotechnical field work?

MR. KEAN: Not that I recall.

And just for clarity, the project manager for the overland transmission at that point in time for DG3, that didn't report to me. That project manager was a 20-year employee of Newfoundland and Labrador Hydro, full career transmission engineer that had been experienced in other transmission projects in this Island – in Newfoundland and Labrador, sorry.

And, you know, he actually carried on and managed the engineering right throughout, and so he – you know, they were – he was quite involved and other members from corporate transmission perspective, as I understand.

MR. BUDDEN: Sure.

MR. KEAN: But no, this was, as I understood, the standard way that they would execute the work.

MR. BUDDEN: Okay.

Who was that individual?

MR. KEAN: That was Kyle Tucker.

MR. BUDDEN: Kyle Tucker. Okay.

Madam Clerk, could we call up Exhibit P-02093, please. I'm moving on now to something else. And, what this is – while Madam Clerk is calling it up – this is a document which sets out – it dates from 2007, I believe, so it's early in your tenure, and you wouldn't have been involved, I don't believe.

But it sets out the – Nalcor's contracting strategy. And perhaps we can go to page 4, Madam Clerk. And what I'm interesting in here, Mr. Kean, when we get there, is that second-last bullet point. And I asked Mr. Hussey some

questions about this. And that bullet point is – quote – “Smaller packages in this market work better.”

Now, I realize this dates from some years before DG3, from 2008 or so, but I guess my initial question, to your knowledge was this contracting strategy – quote – “Smaller packages in this market work better” – ever revised or repudiated or otherwise changed in the period leading up to the time you left Nalcor?

MR. KEAN: No, and actually that's the strategy that we used on the transmission project.

MR. BUDDEN: Okay.

MR. KEAN: Just for clarity, for context, if you wish, Mr. Budden, Commissioner, on the AC transmission line, the first package that was awarded, the right-of-way clearing was separated from that, so that was a, you know, \$40-million package.

MR. BUDDEN: Mm-hmm.

MR. KEAN: We actually went to the market with the AC with the line divided into two with an option for bidders to bid on one or two of them so they could have 250 kilometres or 500 kilometres. And the information that came back was that bidders preferred – those bidders that responded – we had four bidders – one bidder – so, we started out with 23 prospective companies –

MR. BUDDEN: Sure.

MR. KEAN: – and ended up with four bidders.

MR. BUDDEN: Yeah. You did outline this yesterday, but if you –

MR. KEAN: Yeah, so I guess the market – I guess the key in that regard, Mr. Budden, Commissioner, is that the market showed in transmission world there wasn't – there was a great (inaudible) for the larger package and capacity amongst the marketplace to take on, you know, a lot of this transmission was limited, in general.

MR. BUDDEN: Okay. So, as I understand it – and, again, you know, you were there, I wasn't,

so correct me if I'm wrong, but that this philosophy, I guess, was initially expressed in a call for RFPs that was posted on the Nalcor website with respect to the DC line – the Muskrat Falls-Churchill line – and, in fact, there are, I believe, four – that original project was presented as four distinct projects or bids. Am I correct on that?

MR. KEAN: I believe there were four separate commitment packages –

MR. BUDDEN: Okay.

MR. KEAN: – that eventually became about 24.

MR. BUDDEN: Okay.

MR. KEAN: It got broken up even more. There was – you know, of course, the Valard one became a big one, but if you look at all the right-of-way, as an example, that became a lot of separate contracts –

MR. BUDDEN: Sure.

MR. KEAN: – and, of course, exclusively Newfoundland and Labrador contractors.

MR. BUDDEN: Okay. Perhaps I should have clarified my question or focused it. So, the job that Valard eventually ended up doing, which since he was constructing the – and I realize there were right-of-way clearances and other contracts, but the Valard contract from – to construct the line from Muskrat to Soldiers Pond – was that originally envisioned as one package or as four packages?

MR. KEAN: It – neither. It was at – it was two separate commitment packages. The line was broken into five engineering segments with the plan to either – with the ability to either award to one or all or some combination therein.

MR. BUDDEN: Yeah.

MR. KEAN: So, that's – with the plan to have two separate bidding events, Commissioner, and that was to allow us to get the greatest market opportunities. And, of course, through that process and the pre-qualification phase, it became very evident that the flex – the ability and the value of doing that was limited. So,

that's why the strategy to do the sole-source, open-book type arrangement.

MR. BUDDEN: So, the “Smaller packages in this market work better” wasn't, in fact, as it turned out, something that practically could be done with respect to the construction of the DC line?

MR. KEAN: That's correct. And, I think, Mr. Budden, there is a risk in the DG3 QRA that speaks explicitly to this –

MR. BUDDEN: Okay.

MR. KEAN: – the availability of high-voltage contractors. It was referenced in Exhibit P-00130 as a key risk. It's actually even referenced in the SNC 2013 risk report. So, it's something fairly – that influenced our strategy. And at the end of the day, we felt we had – reflecting the market conditions – we had the optimal strategy.

MR. BUDDEN: Okay. I'm not going to go into all the open-book negotiations. That was covered very thoroughly yesterday, and at least one other lawyer will be addressing it as well. However, there is one issue I do wish you to clarify and it is this: As we all know, Valard was responsible for constructing the AC line from Muskrat back to Churchill. And my understanding, at least, is that before the open-book negotiations even began, they were already well into their work. Am I correct on that?

MR. KEAN: They – at – they were in the process of commencing –

MR. BUDDEN: Okay.

MR. KEAN: – the work.

MR. BUDDEN: Okay.

I'll ask you this question and it's a fairly yes/no question but I would like you to think about it very carefully. Can you either confirm or deny whether having Valard write off any cost overruns arising out of its work on the AC line was in any way at all a factor or an issue in the open-book negotiations for the DC line?

MR. KEAN: Can you repeat that?

MR. BUDDEN: Sure.

My question is this – and I – again, I’d like you to think about this, and I think it’s a fairly yes or no question – can you confirm or deny whether having Valard write off any cost overruns arising out of its work on the AC line were in any way at all a factor in the open-book negotiations for the DC line?

MR. KEAN: I’m not sure I quite understand the question.

MR. BUDDEN: Okay, well let me try it again.

MR. KEAN: Sorry, Mr. Budden, (inaudible).

MR. BUDDEN: The – okay, well let’s put it in the affirmative. I would suggest to you that the negotiations for the – that the Valard open-book negotiations – one of the factors that entered into those negotiations was Valard writing off – not pursuing certain cost overruns arising out of its construction of the AC line. To your knowledge, was –

MR. KEAN: Not –

MR. BUDDEN: – is that or is that not true?

MR. KEAN: Not possible – and just to confirm, the open-book negotiations on the DC started in October 2013. I think we saw an exhibit yesterday referenced. The contract for the AC wasn’t even awarded until December of 2013, so two months later.

MR. BUDDEN: Okay.

MR. KEAN: So they wouldn’t have – at that point there, there were no overruns so they – you know, they were – in December of 2013, they were awarded and started mobilizing. I think they installed the first foundation in January of 2014.

MR. BUDDEN: Okay.

’Cause I thought you said a moment ago that they’d already commenced to work on the AC line at the time the open-book negotiations began.

MR. KEAN: When – the period of time that you asked me, I started to reflect on the dates, and I think the dates are shown pretty clear in the documentation that exist (inaudible).

MR. BUDDEN: Okay, so leaving aside the dateline, whether it was possible or not possible – you were there and can you just confirm that the – writing off any cost overruns in the AC line was not at all a factor in the open-book, DC line negotiations.

MR. KEAN: And as I said, there were – if they hadn’t been awarded a contract how could they have cost overruns?

MR. BUDDEN: So the answer is no, it wasn’t a factor, to your knowledge.

MR. KEAN: Well, I guess as I stated it’s not –

MR. BUDDEN: Okay.

MR. KEAN: – I can’t see that being possible.

MR. BUDDEN: Okay.

THE COMMISSIONER: Maybe there’s a – might be a slight misunderstanding of the question because the open-book negotiations didn’t take place in a day, they took place over a period of time.

MR. KEAN: Yes.

THE COMMISSIONER: So over that period of time, was there ever an occasion where the issue of potential cost overruns on the AC line became a factor in the discussions on the DC line?

MR. KEAN: No, Commissioner, the –

THE COMMISSIONER: Okay.

MR. KEAN: – that –

THE COMMISSIONER: That’s fine, no, that’s good. I just –

MR. BUDDEN: That’s fair enough –

THE COMMISSIONER: – wanted to make sure I understood the – you understood the question.

MR. BUDDEN: – we have him giving his evidence under oath so I’m satisfied, I’ll move on.

Looking now at some of the reliability issues – not in the same way they were covered by Mr. Collins but just a slightly other approach to it. Obviously with your – in your position at Nalcor and being part of the project management team generally, you know, the whole purpose of Muskrat Falls – or at least one purpose of it was to satisfy the power needs of the Island of Newfoundland and it logically follows that in order to do that, one needed a reliable supply of power coming down the DC line from Muskrat to Soldiers Pond. That’s a given, isn’t it?

MR. KEAN: Yes, it’s a given.

MR. BUDDEN: Okay. And in return reliability, it’s not only necessary to build the thing, it has to be possible to maintain it and repair such breaks as naturally will from time to time occur, particularly in the weather conditions of Newfoundland. So the ability to repair the line in a timely fashion would be absolutely key to the purpose of the whole project, you would agree with me there?

MR. KEAN: Yes, you need to be able to repair a line once it breaks.

MR. BUDDEN: Yes, and you need to be – not only be able to repair it; I mean, it’s not good enough to say if we wait ’til spring or something like that, you need to be able to repair it in a timely fashion. Keep the lights on.

MR. KEAN: Yes, and I do – as we went through yesterday there was a lot of commentary from MHI about emergency restoration plans –

MR. BUDDEN: Yes.

MR. KEAN: – and the need for those.

MR. BUDDEN: Okay.

And I guess that’s where I’m going and again some of this has been covered but there are areas

where I think we – I’d like to nail down a little more. And I’m mindful of your interview, I’m not going to bother going to the quotes because I don’t think they’re controversial. But at one point, you describe part of the route as being, I think through the Long Range Mountains, as being, quote, on the edge of capability for helicopters; you remember saying that?

MR. KEAN: Yeah, I did remember saying that, yes.

MR. BUDDEN: Sure. And at another point you said something to the effect that: most of the days you sit on the ground out there, you can’t get a chopper in the air. So on another occasion, you remember saying that?

MR. KEAN: That’s the information I was – was passed on to me, yes, that I probably did relay during some – course of one of my interviews, but it’s a statement I do recall.

MR. BUDDEN: Sure. And generally speaking – those are just a couple of quotes that are particularly colourful or apt – but generally speaking, it is a line that runs through rugged wilderness for large sections of it.

MR. KEAN: It is an area that is, of course, is unique. As I – what I’ve seen, you know, from a line design perspective, it took extra care to insure the optimal routing through there. And I think that process revealed various surprises going through. Firstly, is that if you get a lot of rime icing you would not expect to see much in the way of vegetation.

MR. BUDDEN: Mm-hmm.

MR. KEAN: In the actual corridor where the line is, there are some very large trees, which is actually very nice to see as a line designer. You – that’s what – you know, I guess there would be less likelihood to have a line failure if you’ve got a lot of large standing trees.

MR. BUDDEN: Yeah, fair enough. But obviously, you have to plan for the unlikely events as well as the likely ones. That’s the whole nature of reliability.

MR. KEAN: Of course, and that is part of the reason during the design phase of this project,

the considerations from extra material have to be sourced, spare contingent material for operations. You know, certain numbers of each type of tower have to be procured during construction to support that, and that would be available to Operations for them to do their emergency restoration plans.

MR. BUDDEN: Sure.

MR. KEAN: And as I said to you, Mister – I said yesterday, the value and just I – people’s awareness of what actually exists for an access way through that mountains is pretty impressive, today.

MR. BUDDEN: You talked about the road and you used a particular term – rock, crushed rock or something like that, or blasted rock, or something – some technique of laying a roadbed.

MR. KEAN: Yes.

MR. BUDDEN: And the idea being that this would withstand the vicissitudes of nature better than a gravel road would, or so forth.

MR. KEAN: Of course, the more – you know, blasted rock, certainly is more – water will easily flow through it. If there is any drainage issues, it’s not such a concern about cover blow-outs and so on. And, of course, you know, as we know, granite does withstand a long time.

MR. BUDDEN: Okay. Yes, well it’s a – well, I am going to put something to you, I guess, for your comment. If this inquiry were to hear evidence to this effect, and this is a – I guess a quote I’ll put to you. This is not actual evidence but – and you know, just use our imagination to anticipate we hear evidence to this effect, quote: By the time Valard was finished construction, I wouldn’t call what was left a rock-based road. The roads were full of ditches filled in with sand and gravel.

Would you agree or disagree with that? Is that square with your observation, experience, or information that has been given to you?

MR. KEAN: So, I have – as I went through yesterday, I left in January 2017 –

MR. BUDDEN: Yes.

MR. KEAN: – construction finished in November of 2017, so that’s a period of time. You know, roads require maintenance. I have personally – during my time, I spent a lot of time driving access ways to meet with workers, have safety interactions and just check on the pulse of construction. That was something I took – I relished being able to do, to be honest. And, you know, what was built, certainly, was far beyond expectations.

It will take maintenance – of course, culverts will need to be kept clear, basic ditching to be maintained. There’s some – there’s a – but I would say to anyone that the effort required to do that on an annual basis would be very limited and there’s a great asset available. As to the particular – where things look today, I’ve – I wouldn’t be able to say – with evidence to say, you know, where things are at this point, because I wasn’t there. I can only state what I’ve seen my own self by driving on roads since then.

MR. BUDDEN: Sure.

We understand that you left the job two-and-a-half years ago, but that particular quote talked about, essentially, that the construction project resulted in considerable damage to these roads. And the damage itself wasn’t filled in with more crushed rock, it was just patched, so to speak, with gravel and – as was described there. Does that square at all with your observation experience or knowledge?

MR. KEAN: What I do know, Mr. Budden, is that after I left and part of this – I’ve been informed that part of the Valard settlement agreement was the transition of the maintenance of all access for the remainder of the project to Valard. And so that responsibility rests with Valard. You know, in terms of what maintenance they did, I guess, there’s been comments said to me outside of here that things weren’t as good as what the conditions of – the required maintainability and the standards certainly changed after they took them over themselves versus what they expected Nalcor to maintain the roads at.

MR. BUDDEN: Okay.

MR. KEAN: So where they are today I would not be able to say, but it's – certainly, it's an easy fact to be able to see where things would be. You know, it's a visible thing that could be surveyed and assessed. But my main point is that it's a great asset. We have a rock road pretty much from the Northern Peninsula – from structure 94, outside of Shoal Cove, which is 30 kilometres past the cable transition compound – pretty much right to Soldiers Pond. And a lot of Labrador – Southern Labrador, is rock, and a good portion of the interior has a rock base.

So, you know, it's a good asset and it would certainly – it will be a great enabler in terms of enhancing line restoration in the event of an unplanned failure.

MR. BUDDEN: Essential, really, you would agree?

MR. KEAN: While there are other techniques, I understand – I have no personal experience, but I understand there are helicopter techniques that firms like Valard would have expertise in, but I don't think that exists locally, of course.

MR. BUDDEN: Okay.

Are you able to – I mean, as again, we've established that the power being generated is only as good as the power being delivered and if it doesn't make it to Soldiers Pond it's not going to keep the lights on in St. John's. Are you able, I guess given your experience with Nalcor, to say whether you personally believe that the construction and reliability of that DC line is sufficient to allow for the phasing out of Holyrood? Is that something you can opine on?

MR. KEAN: I have no knowledge of that. That's not my area of expertise in the context of system reliability or – I'm not a transmission engineer. There are plenty of experts in Nalcor's group, you know, that can give viewpoints on that.

MR. BUDDEN: Okay.

MR. KEAN: So I don't really know.

MR. BUDDEN: So you built it but you can't –

MR. KEAN: I would not be able to –

MR. BUDDEN: – really speak to its –

MR. KEAN: I had a very –

MR. BUDDEN: – reliability in the present time?

MR. KEAN: Sorry, Mr. Budden –

MR. BUDDEN: Yeah.

MR. KEAN: – I didn't mean to interrupt.

I had a very competent team and a competent contractor, a competent management team, competent engineers that oversaw that and, of course, Nalcor can have – certainly give view on the reliability.

MR. BUDDEN: Sure, okay.

We'll return to that, but I'd just – two other brief areas, one is to do with the, I guess, quality assurance. And just last week the Commission heard from Mr. Mulcahy, who spoke – gave certain evidence as to his experience with the Nalcor culture and particularly with some of this thoughts about – that the project management team, as he dealt with them, didn't welcome people coming forward with quality assurance issues.

And, I guess, I'm asking you: Did you ever personally criticize anyone for either coming to you with quality assurance issues or criticize them for bringing quality assurance issues to other members of your management team?

MR. KEAN: No, it's not a culture that I would support because anyone who knows me, I'm a pretty – I like things to be done right.

And just to – just a little bit of further clarity on that, Mr. Budden. So for the transmission team – which I can speak from a construction –

MR. BUDDEN: Of course.

MR. KEAN: – perspective – more clarity. There is a very clear quality assurance criticality assessment document between two covers of Nalcor that defines the required inspection frequency of everything. There's an inspector handbook, a 150-page handbook that gives

directions to inspectors to what they're supposed to look at. There's various inspection and test plans with signatures that are needed to be given in the field to say for each individual that you are there. There is non-conformant system and reporting, which I would get a dashboard on a weekly basis. And I would often sanction audits.

And I think if you go back through records, I – my name is on signing and endorsing certain non-conformances that may have been brought forward by the quality department. So it's a long way of saying quality is very important. You know, there's no point in spending money unless you get – you're getting something for your money.

MR. BUDDEN: Okay.

So if there was essentially a shoot-the-messenger culture at Nalcor, that wasn't a culture that you personally were part of?

MR. KEAN: No, and I think I even raised concerns yesterday. I hinted to some outstanding quality concerns that I felt fairly strongly about when I left, which was on the concrete foundations for about 600 structures on the AC line.

MR. BUDDEN: Okay, do you want to elaborate on, I guess, the hint you gave yesterday?

MR. KEAN: I think it's given in various presentations, maybe an exhibit or two, but there were approximately 600 foundations that had – on the AC line when I was there that were working through a lack of either A, concrete pouring records; or B, concrete pouring records that showed low-strength concrete or poor air entrainment. Air entrainment, Commissioner, relates to the ability to withstand frost conditions in winter.

So that was an issue and there was a plan through that when I met with the Quanta Valard executives in Montreal on the 16th of November 2016, whereby they had agreed to core 100 of those 600 foundations and to help develop a – to get a better level of confidence in the records that existed. And, you know, that was an open issue. I don't have clarity; I don't know for certain whether that was resolved.

But that's an example of we were going through a lot of concerns on that. It's like the proud conductor strand, we could've – you know, it was questionable about whether that would impact the line and the proud stranding. But from a quality perspective, it was important, reliability perspective; we need to solve it now.

MR. BUDDEN: Were you ever personally dissatisfied with the response that your superiors – be it Mr. MacIsaac, Mr. Harrington or anybody else – gave to you raising quality assurance issues?

MR. KEAN: No, I can't say that to either Mr. Harrington or Mr. MacIsaac in that regard.

MR. BUDDEN: Or anybody else?

MR. KEAN: No, none of my superiors. Mr. Ron Power was fanatical about quality, to be quite honest.

MR. BUDDEN: Okay.

Okay, well, I guess my last question for you – or the last couple of questions – in your interview – I don't have the exact site here, I neglected to note it, but I sort of gathered from your interview transcript that you took a bit of an issue with Grant Thornton saying that you had no or little megaproject experience before coming to work for Nalcor. That's one of the criticisms of the project, that the project management team lacked experience with large projects.

And I guess I'll ask you about that. You recall seeing that criticism, and I guess I'd ask you: What do you regard as the experience – the megaproject experience you brought to this project?

MR. KEAN: Well, I think it's clear that what – you know, I think I went through my early discussions about what my experience was. As an individual, you know, when I graduated from mechanical engineering, I went to work on the engineering phase of the Terra Nova project. I was the –

MR. BUDDEN: For Petro-Canada, I believe.

MR. KEAN: For Petro-Canada, yes.

MR. BUDDEN: Yes, yeah.

MR. KEAN: So that was a, nearly \$3-billion megaproject. In 2001 I was Petro-Canada's representative on the – for the White Rose FPSO concept selection, White Rose field concept selection. And 2002 I was on the front-end loading phase concept screen – I think 2001-2002 for Hebron. So the current GBS structure that's there, you know, I was actively involved in that in the very early phase, so that was, of course.

And, of course, I was Petro-Canada's representative on and looked after their 27.5 per cent interest during the White Rose construction. So that was a, you know, a \$2.5 billion project. I was also the services manager for the billion-dollar Terra Nova FPSO retrofit in Rotterdam in 2006. So that was the period up to then that I was involved in. Of course, as you – so it's a variety of megaprojects and, of course, gave me good experiences. And through that I was involved, you may say, in supporting Petro-Canada in other ventures such as the Fort Hills opportunity.

MR. BUDDEN: Okay.

And we pursued this a bit in Phase 1 so I'm not going to go into it. Just a last question or two.

Before coming to work for Nalcor, had your megaproject experience ever involved the negotiation of contracts such as you participated in with Valard?

MR. KEAN: Not an open-book contract, but negotiation of contracts, yes.

MR. BUDDEN: To what value?

MR. KEAN: In the order of about 650 Canadian.

MR. BUDDEN: Million?

MR. KEAN: Yes.

MR. BUDDEN: Okay. And what – would you have played a lead role in that or would you've been –

MR. KEAN: I –

MR. BUDDEN: – a more junior member of a team?

MR. KEAN: No, I was the Petro-Canada representative for that contract.

MR. BUDDEN: Okay.

MR. KEAN: So I was looking after Petro-Canada's interests in that particular contract.

MR. BUDDEN: Okay.

MR. KEAN: So I wouldn't have been signatory, but I would've been an endorser – reviewer and endorser and contributor.

MR. BUDDEN: Okay.

And so in the chain of command, where would you have fallen with regard to that particular negotiation?

MR. KEAN: I was reporting to the person that was accountable for that, so Petro-Canada, the joint ventures team. There was a joint venture manager, a senior manager that was responsible for that, so I reported to him.

MR. BUDDEN: Okay.

Thank you, Mr. Kean. I have nothing further.

MR. KEAN: You're welcome, Mr. Budden.

THE COMMISSIONER: All right, I think it's lunchtime here now. So we'll take our lunch break, come back and next will be Edmund Martin.

So we're adjourned 'til 2 o'clock.

CLERK: All rise.

Recess

CLERK: All rise.

This Commission of Inquiry is now in session.

Please be seated.

THE COMMISSIONER: Okay.

All right, Edmund Martin.

MR. SMITH: Thank you.

I really don't have too many questions for you, Mr. Kean, but I have two, I think, or three. I'm really interested in the bifurcation. You indicated that there's nothing wrong, fundamentally, with the bifurcation – brings more management to the project as a whole. But you seem to have some difficulties with the execution. Could you elaborate for us on how the difficulties or you – what you found in the bifurcation?

MR. KEAN: Sure. I guess – yes, I did say – it's very – as we're all aware, the project was going through a lot of challenges. Bifurcation added, Commissioner, extra strength and leadership strength to the organization, in theory would give more focus. I think the largest challenge that I saw with the bifurcation was just what seemed to be a random cutting the organization in half, and there was no – and then going – changing direction without any dialogue or exchange of ideas of why we're doing certain things.

So, you know, change was being implemented for decisions that were made, I guess, by Mr. Marshall, and, of course, those implementing the change was Mr. MacIsaac, principally, and, I think, you know, a management change strategy should have been put in place – or plan – to talk about how the change – what the implication of this would be. So, how – what would be the impacts of this.

And, as I indicated, the – certainly had changed in a leadership style with the arrival of Mr. MacIsaac – being very autocratic leadership style that, I think, was challenging to accept in some regards or to understand when you're perhaps being given direction that you question the rationale, and there will be limited opportunity for a dialogue on that. It's just follow directions. Don't question.

MR. SMITH: Did the bifurcation have any effect on your role in the organization?

MR. KEAN: I –

MR. SMITH: Other than reporting? Now, I'm not talking about just the pure reporting change.

MR. KEAN: I guess, initially, somewhat in that at one point – I guess up to bifurcation, I was deputy general project manager for the project, and by that I did spend a lot of time on things like health and safety – the programs working with the health and safety manager, as an example, for project-wide programs.

After bifurcation, of course, I became focused entirely on the power supply, which is fine. From that regard, no concern. It gives – I guess, in that regard, it allowed me to have more focus. I think the big change came at the end of the year when there was a new project director appointed and – Mr. Greg Fleming that was – and some of his ideology was quite unique. And, I guess, as I indicated, when I was leaving, that the desire was for me to stay with the project but be a bit of a – somewhat of a figurehead PM. Have no authority, no decision-making, no responsibility, but just be there.

MR. SMITH: You describe it as unique. In what way?

MR. KEAN: Well, effectively, at the end of the job, I was asked to have an individual assigned to me as a deputy project manager, so replacing the experienced deputy that I had that had 25 years' experience in transmission – Kumar Kandaswamy, that gentleman's name was – and for him to be replaced by what I'd consider to be an intermediate drilling engineer with no managerial experience, no transmission experience and for me to delegate all my signing authority for the Valard contract to that person.

So I thought that was a bit strange, and there were other changing and organizational reviews on the transmission team that were taking place that I was asked not to participate in, just to live with the implications. So those things factored into my decision at the end of the day to depart.

MR. SMITH: So could you comment on whether or not the bifurcation added to the costs of the project or saved money?

MR. KEAN: I really wouldn't be able to give – pass judgment on that. You know, I guess there are both pros and cons as to – as with any change.

MR. SMITH: But you added more people, for sure, to the management team.

MR. KEAN: Oh, certainly, there were more people added to the organization –

MR. SMITH: Right.

MR. KEAN: – than what existed before. Yes.

MR. SMITH: And was there not also a change in the, you know, focus from cost management to a more schedule-driven process?

MR. KEAN: Well, I think it's fair to say that the project was, from day one, cost-driven. That's the – you know, be mindful of schedule but – of course, safety, quality first and foremost – but you need to be mindful of cost. That's an edict that came down from the top of the house – Mr. Martin, in that regard, you know.

But I guess, as with the bifurcation, it was a – really a hard push to have inner – have the lines and have power coming from Churchill Falls before the end of 2017. And as I – you know, it was – as I understood it, at any cost. Let's get – make sure we bring energy down that year. And that's part of the rationale, as I understand it, switch from a bipole to a monopole system. And, you know, so there were, in my understanding, costs that came with that. Of course, you know, that's my personal view, but at the end of the day the information that exists in the project records should be able to give a more objective viewpoint of that than ...

MR. SMITH: Now, you mentioned bipole versus single?

MR. KEAN: Monopole.

MR. SMITH: Monopole. Could – for some of us who are not so familiar with that situation, could you explain what you mean by the difference between monopole and bipole?

MR. KEAN: It's not my area of expertise I will preface it.

MR. SMITH: Yeah.

MR. KEAN: But from a perspective of monopole refers to having one of the two poles in the HVDC converter operating. One – so with that comes less ability to transmit power, so reduced capacity and reduced amount of redundancy. So that was a strategy change.

MR. SMITH: And did this change in philosophy to a more schedule-driven, did you perceive that to be adding cost or saving money?

MR. KEAN: Well, before Mr. – before bifurcation, in the winter of 2016, there was an updated risk analysis done for the project. And I – we talked about that yesterday in terms of EY had made recommendations and – so, given the changing of the, you know, the evolving nature of the project and where things were, there was a full comprehensive cost and schedule risk analysis done to give a better confidence in what that final out-turn cost would be, as well as the schedule.

So this is, as I said, before the bifurcation and that indicated that for the Labrador-Island Transmission Link and the Labrador Transmission Asset, basically the transmission system, that there were then a number of concurrent parallel – or concurrent paths and activities that needed to be done; each would have their own risk profile. And that it was very important to recognize the risk profile of a – completing the converter system was different than completing the transmission lines, which was different than completing the switchyard at Churchill Falls.

Commissioner, the transmission line, unique thing about it is that it has 3,200 towers, in theory 3,200 work sites that you could put crews to. And it's a very much a – it's a pure construction versus the converter, it's very high tech, very complex control systems and so on. So that risk analysis reaffirmed that there was some parallel paths there and our biggest risk exposure was the converter and we should do a lot – have increased focus on bench testing and doing further simulations on the converter control system. That was March of 2016.

So, armed with that, of course, the viewpoint going into this was that Valard has slipped on

the transmission line. There's no need to try to recover schedule here. We should give them schedule relief, not impose them to liquidated damages, work through any open issues we have there, but our focus, the best effort, needs to be on the converter and the control system. So that was part of the level setting, and that was talked about on the arrival of Mr. Marshall and Mr. MacIsaac.

But, of course, you know, as time progressed there became a more of a value recognized, I guess, rightly or wrongly, for 2017 first power from Churchill Falls, that power supply. And that, as I understand it, influenced some decisions regarding accelerating both the activities of Alstom and Valard in early 2017. So those – that was after I left, but I believe there's some project change notices that have been issued as evidence or exhibits that talk about that.

MR. SMITH: How – if there's any particular method, but how was that, if you will, achieved with Valard to move them quickly or forward with the transmission line when other things were probably not going to be ready?

MR. KEAN: Well, I think I indicated that 2015 was a challenging year on the transmission line, there – particularly the first half of 2015 and there was a lot of start-up challenges. We had a lot of subsurface challenges, as we talked about, in the first couple of hundred kilometres; we had a lot of right-of-way access challenges. I think Valard's learning curve increased.

We implemented, you know, more advance test pitting and boreholes to give increased predictability, and things got going faster. So Valard's problem was a long, gradual ramp, but they certainly – their pace increased considerably. I think what's also very important to realize is that Labrador is many – is much different than the Island. Labrador, in Valard's case, they were struggling with foundation installation. Well, if you can appreciate, foundations in Labrador are installed at a depth of 3.5 metres from the – from ground surface. When you get east of Gander, that's only 1.75 metres below ground, so the volume and excavation and so on, things just got faster.

MR. SMITH: Okay.

MR. KEAN: And, of course that contributed to their ability to get going, move faster and their ability to actually achieving completion in 2017.

MR. SMITH: Do I take it then there was little incentive to settle with Valard or claim at or about 2016?

MR. KEAN: Well, I think there's always good – it's always good to have things in order with the contractor. Let's be quite honest, you know, the better – you know, outstanding issues, it's nice to work through them. But at the end of the day, Valard was getting compared with Astaldi. Given the situation that existed with Astaldi, people were wondering, of course, with Astaldi about their capacity to finish things.

The most important thing that we're bringing to people's awareness is that Quanta Valard had a depth of resources; they didn't have a broader corporate challenge from a cash flow or anything. They had, you know, substantive resources available and other crews that could be deployed. And it wasn't a situation with a, let's say, liquidity issue or anything of that nature.

So, they had the capacity. That's a matter of, I guess, motivating them to do that, but at the end of the day, if they didn't put extra resources on, the exposure to the project was, in my view, minimal, because while it's something we needed to have under close watch that it doesn't get any worse, and we need to be doing things, of course, we can't be – stick our head in the sand, we need to be doing things to enable Valard. But we don't need to accelerate Valard because, if any, the focus needs to be on Alstom. And I think at the end of the day, Valard's ability (inaudible) and Valard, delivered in the November period. And, you know, Valard is a competent contractor.

MR. SMITH: In your April 25 page 28 transcript, you remake a reference to the \$245-million settlement, indicating that in your interview, at least, that you were shocked and flabbergasted at that number of settlement with Valard. Could you indicate why you felt shocked and flabbergasted? Or is that an accurate representation of what your transcript seems to suggest?

MR. KEAN: Well, when I read the Grant Thornton report it indicated a value that I thought was much higher. I was – my understanding of the value of a Valard settlement agreement – my base understanding of that came from the press release that Mr. Marshall gave in June of 2017 where he indicated about \$140 million. So, in my interview on the 25th I think we had some discussion whether that was the true value of the settlement agreement of 245 or whether a portion of that was change orders that were purely things that either had been approved or were in-process at the time I had left, such as the restringing. There was no debate that Valard were entitled for restringing, as were suspension time.

So the quantum of 145, yes, that's a high number. And I would still use that view on shocked and flabbergasted to describe that 140 or \$145 million, based upon what I knew at the time I left, and my understanding of how the course of events went.

Now, I also said that I had – up 'til the point of my discovery interview – had no visibility into the claim. I was provided with a document, I think, in February as part of my discovery that showed what the Valard claim was. I have not seen any of the Nalcor analysis. So, I can only assume that an amount was landed upon, or I would assume or I would question Nalcor, did – was an amount landed upon from a, you know, a fair and reasonable basis that included good evaluation of entitlement, causation and damages.

MR. SMITH: Having looked at it, then, did you have any attempt, or have you had an attempt since to determine of the 245 used for the global amount, how much of that was you expected to be for change orders or – and how much was related to more, say, nebulous type of claims?

MR. KEAN: So when I – the contract was awarded at \$809 million to Valard. And there was identified at the time of award that we expected it to be around \$880 million, but the award price was 809. So that was the internal number, I think, around \$880 million for that package. When I left, I think it's in the records, I signed a change order. The last change order I signed, it probably brought it in that range of

\$880 million, the internal change notice – or internal change order.

So, of course, it went from there to – there were some outstanding change orders that were still being processed. It was around Christmas period that I left. But, you know, it's – there's a large amount of money there that I guess I wouldn't be able to provide clarity on this \$145 million or so, so on. And I guess the global settlement that was done with Valard there, you know, Nalcor would have the details of that available.

My only comment, as I made yesterday, in that looking at the claim as the document that was presented, it seems to ignore some very important considerations that were influencing the as-built schedule, such as the placement of guy anchors. It doesn't seem to be factored at all into that. And I question the aspect of that, because that's an aspect of concurrent delay due to contractors' issues, not Nalcor's issues. So where does that factor in there? I – again, I would encourage it. I guess it would be – I can't assume. Certainly, it would be something in the Nalcor system to talk about that.

MR. SMITH: Thank you, Sir.

That's all the questions I have.

THE COMMISSIONER: Thank you.

Kathy Dunderdale.

MS. E. BEST: No questions, Commissioner.

THE COMMISSIONER: Provincial – Former Provincial Government Officials '03-'15.

MR. J. KING: Good afternoon, Mr. Kean.

Justin King on behalf of Former Provincial Government Officials between the years 2003 and 2015.

Madam Clerk, if we could go to 03166.

THE COMMISSIONER: 03166.

MR. J. KING: Sorry, I don't have your –

THE COMMISSIONER: That's tab 41, book 2.

MR. J. KING: Okay. So this is an email that was reviewed yesterday. You have it there?

MR. KEAN: Yes, I do.

Thank you.

MR. J. KING: Okay.

So, the bottom portion of this on page 2 is an email from Paul Harrington to you. References his letter that he wrote to Stan Marshall in June. I'm more concerned about the top portion but just for some context, that's what we're looking at here.

So at the very top I'll get you to read your first sentence there. So this is your email back to Paul Harrington. So just read your first paragraph there into the record.

MR. KEAN: Sure.

"I might add that the cost risk above the 6.2 B was well known and communicated, but a strategy was taken to cover this under previous administrations using contingent equity."

MR. J. KING: So my main concern is in relation to the first sentence there, I guess, lead sentence: "I might add that the cost risk above the 6.2 B was well known and communicated."

So just to break that down a bit, who are you referring to there? Who – who knew this information and to whom was it communicated?

MR. KEAN: I'm referring to the Nalcor executive in this email.

MR. J. KING: Okay, okay. So just to confirm, that is strictly the Nalcor executive –

MR. KEAN: Yes, as to –

MR. J. KING: – that you're referring to.

MR. KEAN: – beyond that, as I indicated, I have no visibility nor insight.

MR. J. KING: Okay. And I think your comment this morning was that – that would be above your pay grade.

MR. KEAN: Yes, it would be.

MR. J. KING: Okay.

So in terms of the second paragraph there, I'll ask you to read that one as well. Beginning at, "I would also add"

MR. KEAN: "I would also add that PM turnover is strongly correlated by IPA to projects that fail, and that the #1 strategic risk identified in 2008 for this project related to Governance and the resultant challenges of trying to execute a mega project as an entity of the crown."

MR. J. KING: And just continue to the end there.

MR. KEAN: "Let's not try to sugar coat this anymore – the situation over this past 6 months is a prime indicator of what happens when a strategic risk outside the project team's control takes hold – we lose control."

MR. J. KING: Okay.

So in relation to that paragraph there, what was the strategic risk, specifically, that you were referring to?

MR. KEAN: I think it actually was strategic risk number 2, key risk number 2, which is Nalcor being an entity of the Crown –

MR. J. KING: Okay.

MR. KEAN: – or Crown corporation, and some of the unique challenges comes with executing a project like this as an entity of the Crown.

MR. J. KING: Okay.

And, obviously, in the context of this email, we're looking at the period of approximately June 2016. So that strategic risk, specifically, or the one that you're referring to in this paragraph, when did that really start to manifest itself, in your opinion?

MR. KEAN: I think it had various profiles throughout the execution of the project. Quite early it had challenges, and I think some of that was recognized by things like the formation of Nalcor, the intent to remove the project from the

public tendering act, the aspect of ensuring there was clear delegation of authority in the organization. Things like that.

But, of course, as – you know, it came up over time, as I understand it, from the challenges, that Nalcor sometimes had to do consultation with certain Aboriginal groups, as an entity of the Crown, you might say. So it's – I recall that being a point of discussion. But, yes, at this point in time, if we look at the winter of 2016, we're – you know, from an execution perspective, we've got challenges. We got challenges with Astaldi from a – although we've had a great year progress-wise, but, you know, Astaldi has financial challenges. There needs to be some sort of arrangement put in place to look at completing the project.

There are other areas of the projects that have challenges – transmission. But, in this case, we've got EY in. We've got – you know, it seems like reviewer after reviewer are coming in. It's questioning everything. And I guess from a project team perspective, you know, they're just anchoring back that, you know, make people aware that some of the fundamental underlying challenges were well-known, well – people were well-aware of, as well as some of the schedule exposure on the project. That the project could go much longer.

MR. J. KING: I guess, just to break that down a little bit. So in the last few lines there, you say: "The situation over this past 6 months is a prime indicator of what happens when a strategic risk outside the project team's control takes hold – we lose control."

So, that's obviously referring to a specific period there. In terms of that strategic risk, what was the reference there? Can you provide some more context into that specific period, what you were referring to?

MR. KEAN: I think the main thing from a governance perspective is that bifurcation just occurred. And I did indicate that I saw bifurcation as positive. It's more the aspect of – from a general execution of that. That seemed to be just pure chaos: lack of clarity, lack of why we're doing certain things, no willingness to give input or accept input. It's just this is what we're doing. And again, it's not at a Mr.

Marshall level. It's at a level beneath him with Mr. MacIsaac. So it's that regard. Things were – the ground was quite shaky and uncertain throughout this point in time. So in that regard from losing control, I guess it's about – it's reflecting on, you know, things – it's a great lot of uncertainty of where you even stand or what we're going to do, what the strategies are. It seems like the sands are shifting, I guess.

MR. J. KING: So from your experience during that time, what impact did that have on the project?

MR. KEAN: The biggest issue was morale at that point and some eventual attrition. But I guess the lack of direction. I think there are others that were involved in things like negotiations with Astaldi, as I understand, that were halted during this period because of the amount of issues that were under way, you might say. So, you know, that's something that perhaps Mr. Lance Clarke could give a bit more clarity on, he's closer to the Astaldi – but I think it's a lot of the aspect of not being able to move things along, you know, clarity as to who was doing things. You know, Mr. Marshall arrived, that was a fairly – I guess, as I understand, he didn't – wasn't planning for months to come in and join the team. So he had other commitments and things were a bit uncertain there for a while as things had to get organized.

MR. J. KING: So there would be a schedule impact because of that?

MR. KEAN: I think – well, I don't know if it was a schedule impact. Certainly from a cost perspective, I think the aspect of the lack of certainty and the lack of changing strategies midpoint. It's major project change. We talked about the EPCM thing and the switch to an integrated team. Well, I would say to you this is bigger. Because not only are you looking at an organizational perspective, you're looking at the fundamental strategy and plans of how you deal with contractors, your philosophy, how you managed any aspects of the project, you know, became – I guess became questionable. And I guess that's fine, but it's a matter of, again, let's sit down and talk about what this is. What is the impact for the project? How would you like us to proceed? What is your thoughts regarding the intent of addressing any open claims?

And this is the date, I think, on the 16th – or the 5th of June, is it, you're showing me?

MR. J. KING: I think it is the 6th of June –

MR. KEAN: Yeah, I –

MR. J. KING: – or the 5th of June, sorry.

MR. KEAN: Yeah, and there's an exhibit in the book on it that I – a presentation that I gave to Mr. Marshall and Mr. MacIsaac on the 6th – on the 14th of July, which was the first time we had a chance to speak about Valard in depth. Where I am asking for – I want clarity on the path forward. Again, we're asking. As a project team we're trying to get that direction. You know, there are decisions required beyond our pay grade that need to be taken and direction given so we can move forward. That took a while. So eventually, of course, things occurred, and of course, as you were, we just talked about settlements and so on, but there was a period of time that, you know, there was a challenge there.

MR. J. KING: Okay. Thank you.

That's all my questions.

THE COMMISSIONER: Thank you.

Julia Mullaley, Charles Bown.

MR. FITZGERALD: Good afternoon, Mr. Kean.

Andrew Fitzgerald, I represent Julia Mullaley and Charles Bown.

MR. KEAN: Good afternoon, Mr. Fitzgerald.

MR. FITZGERALD: Just a couple of points of clarification, as my clients were both on the Oversight Committee – excuse me – and you referenced the Oversight Committee a couple of times during your testimony.

How many times did you brief the Oversight Committee personally?

MR. KEAN: Three to five.

MR. FITZGERALD: Okay. In your testimony you referenced 2015 and 2016.

MR. KEAN: Those are sessions that certainly stand out for me.

MR. FITZGERALD: Okay. When you would brief the Oversight Committee, who was with you?

MR. KEAN: I would've been presenting as part of a – typically, a larger project team.

MR. FITZGERALD: Yes.

MR. KEAN: So there could've been Mr. Harrington; Mr. O'Brien could've been there from the Muskrat Falls team.

MR. FITZGERALD: Mr. Bennett?

MR. KEAN: And perhaps Mr. Power. It would vary meeting to meeting.

MR. FITZGERALD: Yeah, was Mr. Bennett there?

MR. KEAN: He may or may not have been.

MR. FITZGERALD: Okay.

In terms of presentations that were made to the Oversight Committee, were there occasions where you would prepare documents that would subsequently be presented not in your attendance?

MR. KEAN: That I would prepare presentations?

MR. FITZGERALD: Yeah. And just for instance, Mr. – then Mr. O'Brien or Mr. Bennett would give the presentation?

MR. KEAN: Oh, they may give presentations related to their area, yes.

MR. FITZGERALD: Okay.

MR. KEAN: But not – with regards to transmission, that would be delivered by myself or my deputy.

MR. FITZGERALD: Okay.

When a request came in for information from the Oversight Committee, generally speaking,

can you describe to me the process that was engaged by Nalcor into responding to the information request?

MR. KEAN: I don't know the details, but there was a contact point by the name Steve Pellerin, who was the focal liaison point with both – I thought, the independent engineer and the Oversight Committee, and he reported to Paul Harrington, the project director.

MR. FITZGERALD: In your opinion, Mr. Pellerin would be the best person to talk to about that process?

MR. KEAN: I – yes.

MR. FITZGERALD: Thank you very much.

THE COMMISSIONER: All right.

Robert Thompson.

MR. COFFEY: Good afternoon, Mr. Kean.

My name is Bernard Coffey, I represent Robert Thompson.

MR. KEAN: Good afternoon, Mr. Coffey.

MR. COFFEY: Primarily, I'm gonna focus my questions on the whole issue of risk and estimating it and so on.

But could – just to begin the questioning, we have seen throughout, you know, the evidence that this Inquiry has heard, the project cost estimates, you know, comprised in different ways – you've seen that – base estimate, escalation contingency, and at sometime, depending on which diagram you're looking at, strategic risk as well, added in – you know what I'm talking about.

MR. KEAN: Is that a statement or a question?

MR. COFFEY: Yes, that is a question. Do you – you have seen –?

MR. KEAN: Yes, I'm familiar with the diagrams, yes.

MR. COFFEY: (Inaudible) and sometimes – my point being that sometimes strategic risk is

in, sometimes it's not in that diagram, as to how project cost estimates are, you know – or the total are totalled.

MR. KEAN: The diagrams that, I believe, you're referencing do depict four components –

MR. COFFEY: Yes.

MR. KEAN: – and I think we – in phase one I tried to ensure there was clarity that the – the base estimate, plus the escalation, plus the contingency was what comprised of the team budget. They're –

MR. COFFEY: Okay.

MR. KEAN: – what we referred to as the original control budget.

MR. COFFEY: Yes.

MR. KEAN: And the strategic risk exposure was identified as management reserve that, to my understanding, was being funded by contingent equity.

MR. COFFEY: Okay.

And now, were you aware when you were still working with Nalcor – during your time with Nalcor, were you aware of whether or not at times there was any confusion within Nalcor as to what was or wasn't included in the project cost estimate?

MR. KEAN: In which regard?

MR. COFFEY: Well, in this sense, because we've heard here, I mean, I think – or – and I'll ask you this question then: Are you aware that a number of government civil servants and former politicians have testified that they just saw, you know, contingency as contingency; the idea of tactical risk, strategic risk, they had no knowledge of. Are you aware that that's the case?

MR. KEAN: No.

MR. COFFEY: Are you aware that they've testified to that effect?

MR. KEAN: No, I'm not – I haven't been following their –

MR. COFFEY: Okay.

MR. KEAN: – testimony –

MR. COFFEY: All right.

MR. KEAN: – to –

MR. COFFEY: Okay.

MR. KEAN: – understand what they've said and have not said.

MR. COFFEY: Okay.

Within Nalcor though, in terms of the people you dealt with, did they understand the difference between tactical risk and strategic risk from your perspective?

MR. KEAN: Yes.

MR. COFFEY: Okay.

And this is this project management team, Mr. Clarke, Mr. Power, Mr. Harrington; the people above them, Mr. Bennett, Mr. Martin.

MR. KEAN: Sorry, I guess I should correct that. I should – my – whether they understood –

MR. COFFEY: Yeah.

MR. KEAN: – is one thing.

MR. COFFEY: Yeah.

MR. KEAN: All I know is whether it was communicated to them.

MR. COFFEY: Okay, and that's –

MR. KEAN: So one's – I can't attest –

MR. COFFEY: Oh yeah.

MR. KEAN: – to one's understanding.

MR. COFFEY: And that's where – and I appreciate that clarification, but as best you could tell at the time, from time to time they

never indicated to you that they were confused in any way.

MR. KEAN: No. Prior to sanction, I gave probably – you know, there were at least two dozen instances where I probably used slide decks and other means –

MR. COFFEY: (Inaudible.)

MR. KEAN: – and emails to communicate through, as to the differences and why we're doing certain things and a lot of – some of those things were featured in Phase 1 of the Inquiry.

MR. COFFEY: Yes.

Now, yesterday, at one point you were asked about tactical risk and strategic risk and labour availability and, you know, labour productivity. And I believe you indicated that consideration of labour availability or unavailability and labour productivity factored in to calculation of – or consideration of tactical risk and strategic risk. Am I right on that?

MR. KEAN: We talked about it yesterday. I believe Mr. Collins asked me about –

MR. COFFEY: Yes.

MR. KEAN: – about the – where labour – the labour element – labour availability. It was more of a broader strategic risk, the residual amount at DG3.

MR. COFFEY: Mm-hmm.

MR. KEAN: And that was an item that was captured in the 2012 QRA as a major strategic risk element.

MR. COFFEY: Yes, yes.

Was it, though, included in some of the tactical risk assessments?

MR. KEAN: The –

MR. COFFEY: And I could take you to your transcript. I think yesterday you did refer to it as being in both. And I appreciate your, no, you know, you're – you are making it more particular as to which category it fell more into.

MR. KEAN: Two separate –

MR. COFFEY: Yes.

MR. KEAN: – things. There were labour in the tactical, which is driven by the estimate of uncertainty; the –

MR. COFFEY: Yeah.

MR. KEAN: – risks themselves associated with, say, productivity for, let's say, placement of formwork; whether there was some variance therein, smaller variance. That's what we were capturing in the tactical side.

The broader concern with labour availability, productivity, the ability to achieve the commitments that were coming forward in the labour agreement –

MR. COFFEY: Yes.

MR. KEAN: – that was, you know, deemed to be something that was strategic, a strategic risk, and the exposure was captured as part of that strategic risk assessment.

MR. COFFEY: Now, following on, on the topics of labour availability and labour productivity, are you aware that Paul Lemay has testified that he factored that in to the base estimate?

MR. KEAN: I believe there was – Mr. Collins had made reference yesterday to an allowance and asked me if I had any familiarity with it.

MR. COFFEY: Yes.

MR. KEAN: And I indicated I had no such awareness of that. My only awareness was that in the base estimate there was an extra – when the base estimate was prepared by Mr. Lemay and colleagues –

MR. COFFEY: Mm-hmm.

MR. KEAN: – for the powerhouse, let's say, intake and powerhouse, there was a 200,000-person-hour provision for winter works and non-productive time around winter works therein, but I had no awareness of the \$200-million allowance Mr. Lemay is indicating.

MR. COFFEY: Mm-hmm.

MR. KEAN: And I believe I indicated that unless it's reversed engineered into the productivity factors, I guess I never saw that. And I – you know, there was a fair bit of scrutiny with the estimates so, you know, that's something that'd have to be deferred to Mr. Lemay to give clarity on.

MR. COFFEY: Okay, because he did testify – well, back in the fall he testified that – and he clarified he had at one point said \$300-million contingency in the base estimate. He said – well, no, that was a translation problem; he said it was \$300-million allowance.

And then in late March of this year when he testified again, as I understand it he told Mr. Collins that there was – the \$200 million of that \$300 million was an allowance, he had added 20 per cent, \$200 million for labour productivity, labour availability issues. And I presume the other hundred million – I'm just presuming it – is the geotech allowance because –

MR. KEAN: Yeah.

MR. COFFEY: – he testified to that as well, and they happen to add up to \$300 million.

My point being this, that apparently Mr. Lemay did allot – and he's testified he allotted a certain amount, roughly \$200 million, to deal with labour productivity, labour availability issues. You have indicated that labour availability, labour productivity, at least in some instances, factored into tactical risk amounts. Correct?

MR. KEAN: Yes.

MR. COFFEY: And, as well, largely factored into strategic risk. Am I correct on that?

MR. KEAN: Yes.

MR. COFFEY: Okay. To the tune of, in strategic risk at DG3, it would be \$350 million, on –

MR. KEAN: That –

MR. COFFEY: – the cap, that cap amount being 350.

MR. KEAN: That was a maximum side.

MR. COFFEY: Yes.

MR. KEAN: I do believe that was discussed there yesterday.

MR. COFFEY: Yes, you did. In fact you did yesterday.

MR. KEAN: And as I said, I – from Mr. Lemay's side, I – you know, Mr. Lemay is very proficient and a very –

MR. COFFEY: Mmm.

MR. KEAN: – competent individual. So, you know, I think it would – to understand that further you'd need to be able to crack open the estimate and go through it and that's – I don't have that in my –

MR. COFFEY: Yeah, and I don't – I appreciate that, Mr. Kean, I don't propose do it here and now. But the reason I'm raising it is this, is that would you agree that the allotment, the quantification of what you're going to allow for labour productivity or labour availability problems – the quantification of that and into which slot it's fitted, whether at the base estimate stage by Mr. Lemay, at the tactical risk stage, or at the strategic risk stage by someone such as yourself, and as between tactical and strategic by someone such as yourself, is somewhat just a judgment call –

MR. KEAN: No.

MR. COFFEY: – was somewhat a judgment call?

MR. KEAN: It was really driven by what the risk – the pure risk itself was. So what were riverbanks? So, from a strategic risk perspective, I don't know, maybe –

MR. COFFEY: Okay.

MR. KEAN: – we can open Exhibit P-00130 and we could –

MR. COFFEY: Well, I'm – what I'm asking in particular to – you to focus on is labour availability and labour productivity, okay, those.

The allotment is between tactical risk and strategic risk, and the amounts so allotted would be you and your team's with – in concert with Westney's decision.

MR. KEAN: So labour availability is purely strategic, never no – no allowance within tactical at all.

MR. COFFEY: Okay.

MR. KEAN: Some of the productivity can – regarding winter works and so on is what would've been – and the uncertainty regarding that was what was captured in tactical, the labour productivity that might come from inexperienced workers because of competing projects or the inability to achieve the work team concept that's in the collective agreement, the inability of the contractor to adhere – or to enforce, let's say, the provisions within the collective agreement, the inability for the contractor to attract the necessary level of competent supervision; those were what we called strategic. 'Cause those were a broader industry concern, not specifically driven by the Muskrat Falls Project or the project's characteristics.

MR. COFFEY: Now, you are – are you aware – I wanna put it to you – are you aware that, for example, well a company that, you know, was, in effect, a co-venturer in the whole – the entire Muskrat Falls Project, namely Emera – Emera didn't use strategic risk, the kind of categorization that you do. Were you aware of that?

MR. KEAN: My understanding, they did – Westney did the same risk reports and I received two copies, different times, and it was the same set-up.

MR. COFFEY: And may very well be. I'm just – if we could, Commissioner, bring up Exhibit 01462 – P-01462?

Yes, it's in binder 4, tab 87. So just a one-page document.

And if you look at – this is a response that Mr. Chris Huskison gave to a question from Commission counsel. It's dated November 25, 2018, and if you – after explaining who he is and

so on, if you scroll down to number 4, and he's being asked in this context about a comment in Exhibit P-00264, page 19, which has to do with the, quote, "... 'drop the provisional strategic risk allowance... to respond to Emera's concern regarding its ability to sell the strategic risk concept to the Nova Scotia regulator... '"

And in number 4 he goes on to say: "In order to understand that reference it is important to understand: A. Emera and the UaRB do not use the term or terminology 'Strategic Risk'" – in quotes – "in presenting risk associated with project cost estimates for the purposes of project assessment and approval; and B. the costs and risks assessed and included in a project cost estimate are a separate matter from the choice of terminology or language used to describe allowances for risks included in project budgets or estimates."

Now, that's what he said there and he repeated it under oath in speaking to Mr. Learmonth.

So, were you aware that that's apparently Emera's practice?

MR. KEAN: No, I had no reason to be aware, and as I said –

MR. COFFEY: And I'm not suggesting you should've been (inaudible).

MR. KEAN: I was aware and had received copies of the Emera – or the risk assessment done for the Maritime Link by Westney that used the same methodology and risk taxonomy as used for, you know, the Muskrat Falls Project.

And I would also add, is that aspect of whether you call 'em one thing or another, the most important thing is that a risk is identified, is framed, and people are aware of it.

MR. COFFEY: Exactly, and in fact he goes on – and I don't think – you probably haven't had a chance to read this – but he goes on to say then: "While some project advisors may choose to analyze and reflect project cost risks using 'strategic risk' terminology, in Emera's case," – it approaches – "its approach to all projects including the Maritime Link project was, and is, to present a project cost estimate developed on a line by line basis to determine a project budget;

including a determination of all risks represented in the base project estimate and the project contingency within the overall project budget."

I'm gonna suggest to you that in his case, they have a base estimate escalation and a contingency, and that's the project cost.

MR. KEAN: Yeah, I can't confirm what Emera does or does not do, I guess; I can only speak to what we – we did and what I was aware of.

MR. COFFEY: And in fact, when Mr. Huskison was questioned by Mr. Learmonth on December 7 of 2018, and Mr. Learmonth, in posing a question to him, said: the – you know I – in reviewing all of these, the terminologies used by different consultants is all over the place. It's hard to get a handle on it because the words aren't used consistently in the same way.

Now, Mr. Learmonth's not testifying here, but that was a comment he made about a year into being counsel for this Inquiry. So, Mr. Kean, in the world of risk estimates, risk – risk estimating, is there any consistency really in the usage of terminology between consultants?

MR. KEAN: There are – yes, I would say, yes –

MR. COFFEY: And –

MR. KEAN: – there are two – to my knowledge and what I've seen over time, I see reference to two different phrases, if you would, Commissioner. It's a risk taxonomy whereby as Westney referred to tactical and strategic risks, and those tactical risks are very project specific; and strategic are broader – you know, are issues typically outside a project team's control, and that may transcend an industry or, you know, a region of the earth that an activity may occur in, so you may get things like macroeconomic influences in there –

MR. COFFEY: Okay.

MR. KEAN: – or not.

So, in addition to those tactical and strategic risk terminology, the two words of project-specific risk and systemic risk are often used. And I believe you will find that those four terms are defined within the Association for Advancement

of Cost Engineering, recommended practice on terminology – cost-engineering lexicomy [sp. lexicon] you might say.

So, I guess Mr. Coffey, that's my awareness of that. There could be others, but those are the terms that I've typically heard, so tactical, very – has that strong correlation to project-specific, while systemic or – have a strong relationship to strategic. Whether they're identical, that would be something that experts in those fields could indicate, and that's beyond my – I'm not an expert in those – in the area of risk management.

MR. COFFEY: In the – you know, in dealing with the whole subject of megaprojects and megaproject management, are you aware of whether or not, or could you point the Commissioner to any sort of texts that might be considered classics – like out of the bible?

MR. KEAN: I think, I – as I understand it, there's a cost – a lot of the studies come back to two key areas that I've been made aware of in my career. One is the work that was done by the Rand Institute, R-A-N-D, Ed Merrow, who's now the – who was – went on to become the founder of Independent Project Analysis that –

MR. COFFEY: Yes.

MR. KEAN: – we used.

MR. COFFEY: Yes.

MR. KEAN: Also it would come back to before that, 'cause the Rand Institute work, I think, was in the '80s and it's often widely referenced, but – by a cost engineer called Hackney –

MR. COFFEY: Mmm.

MR. KEAN: – that probably does a lot of the early work on parametric modelling to look at, you know, the – trying to correlate project characteristics to project outcomes. But again I'm not an expert in the field; generally, my –

MR. COFFEY: Okay.

MR. KEAN: – understanding of the subject as a practitioner.

MR. COFFEY: So, if somebody like Dr. Bent Flyvbjerg in 2017, in opening a text on megaproject management, said that in – at least in his view, there was no such thing as a classic in megaproject management, you wouldn't be aware of that?

MR. KEAN: (Inaudible.)

MR. COFFEY: And this is exhibit three – it's – and I'm not suggesting you should be aware of this 'cause – exhibit – Commissioner, 03252, page 3.

MR. KEAN: 03252.

MR. COFFEY: Yes, it's – if I could, I'll help you with that, Sir. 03252 is tab 4, exhibit – I'm – binder 4, tab 97. I'm sorry, 96, I apologize. And it's just a very short excerpt – opening sub-chapter of his book.

The – it's called Classics in Megaproject Management, but he offers the view that there's no such thing in this – in that world, that it's all over the place, and there's no real consensus. You know, with your background, were you aware that, like, even such a thing as his publication exists?

MR. KEAN: Am I aware –

MR. COFFEY: Were you aware even of this – this publication exists?

MR. KEAN: Yes, or –

MR. COFFEY: Okay, have you read –

MR. KEAN: Yeah.

MR. COFFEY: – it?

MR. KEAN: Not this particular one. I have a – about four feet of these similar ones on my bookcase.

MR. COFFEY: Okay.

MR. KEAN: But it's one of my – on my to-buy list, to be honest. I've got some earlier works from him.

MR. COFFEY: So, he says in the – on page 3, in the second paragraph: “In a recent survey, the author asked 114 experts to identify the classics in megaproject management” And he says: “The results show that if one defines a ‘classic’ in the conventional sense – as a written work that is generally recognized as definitive in its field by a majority of experts in that field – then there are no classics in megaproject management.” And he explains why: because there’s no consensus amongst the people he’s polled on it.

Now, you know, following on on this whole issue of megaproject management and cost estimating, Commissioner, I’d ask you to turn to Exhibit P-03174. And, Mr. Kean, that is binder 3, tab 60. Tab 3, binder 60?

I’m sorry, binder 3, tab 60, I apologize.

Okay, Sir? Now, this is, as you can see from the title, on the first page, page 1, is a photocopy of the text called *Industrial Megaprojects: Concepts, Strategies, and Practices for Success* by Edward Merrow. If you turn to page 2, Sir, you’ll find it’s copyrighted 2011 (inaudible) text. And, Commissioner, just as an aside, this, I gather, is the text that Scott Shaffer referred to. There are – in Grant Thornton’s report for Phase 2, by my count, there are 12 excerpts, separate – different excerpts from this text by Mr. Shaffer. But what I’m gonna ask you to look at, Mr. Kean, was not referenced by Mr. Shaffer.

If you could look at page 4 of the exhibit? And at the bottom of the page there you’ll see there’s a – a heading Risk Modeling: A Tale of Two Practices – and I should ask you before I go on: have you ever read Mr. Merrow’s book?

MR. KEAN: Yes, I read it.

MR. COFFEY: Okay.

MR. KEAN: Recent – a couple of years ago, I believe. I – most importantly, I guess, Mr. Merrow – I’ve not had the pleasure to meet him, but in 2007, Mr. Merrow’s firm, Independent Project Analyst [sp. Analysis] came to St. John’s and provided a day-and-a-half, I think, workshop –

MR. COFFEY: Yeah.

MR. KEAN: – using the concepts that are in this – you know, similar concepts that are in this book to the project team, the – what was then the Newfoundland and Labrador Hydro project team, and of course, since then, since 2007, Mr. Merrow’s firm, IPA, Independent Project Analyst [sp. Analysis] –

MR. COFFEY: Yes.

MR. KEAN: – had done three separate reviews using the methodologies and practices they talk about in this book.

MR. COFFEY: Now, here at the bottom of page 4 of the exhibit, he says, two models – “Two types of modeling are routinely practiced on large projects: ... Monte Carlo simulation of cost” – well, number “1. Monte Carlo simulation of cost risk, usually with an eye to setting the appropriate contingency; 2. Probabilistic analysis of the authorization schedule to assess the reasonableness of the forecast time requirement.”

And then if you turn the page, Sir, he goes on to say: “Although these practices appear similar, they actually have very different efficacy. Monte Carlo (and variations) simulation of cost is less than worthless; it actually does harm. Probabilistic schedule analysis is very useful.” And then he has a heading, “Monte Carlo Cost Risk Simulation Does Not Work,” and he goes on to explain why.

Now, I’m not – well, first of all, I’ll ask you. Were you aware that – of his view of Monte Carlo simulation’s usage in cost estimating?

MR. KEAN: I can’t specifically speak to being aware of Mr. Merrow’s comments there.

I know –

MR. COFFEY: Okay.

MR. KEAN: – Mr. Merrow’s practice focuses heavily on the – looking at a project’s attributes and trying to use those attributes to construct – to make assessments on project contingency using parametric estimates – project – parametric modelling techniques.

But I'm – I guess to – I'm not familiar – I wasn't – can't say I remember the comment or, you know, I'd heard that before in that regard.

MR. COFFEY: Yes.

And if you turn to page 7, the first full paragraph begins: "When Monte Carlo simulation was not used" – and he's talking about the analysis that's been done – "teams were actually more sensitive to basic risks as they set contingency." And then he continues a couple of sentences later: "This is why I have to conclude that Monte Carlo simulation actually does harm; it is not merely worthless. The use of Monte Carlo simulation has no relationship to success of megaprojects or any of our other five figures of merit of projects: cost growth, cost competitiveness, schedule slippage, schedule competitiveness, or production attainment."

And then he says: "So why is Monte Carlo simulation so widely used? I believe it is because it seems so plausible. The Monte Carlo simulation results have, to use Stephen Colbert's wonderful word, the feel of *truthiness* about them, that is, the sense of being true without any of the burden of actually being true. After all, a 'scientific simulator' generated these results, not mere humans! Monte Carlo simulation is also easy to use and has given birth to a substantial cottage industry that is deeply invested in the approach." And one can go on and read the rest of it to one's self.

And I'm not here, Mr. Kean, to take sides, in that I have no expertise in that area at all, but that does suggest, doesn't it – being what was written there in 2011 – that Mr. Merrow is skeptical of the usage of Monte Carlo simulation and its efficacy in making cost estimates.

You'd agree that he appears skeptical.

MR. KEAN: I can only just –

MR. COFFEY: Yeah.

MR. KEAN: Listening to what you had read and what's here on the page, I guess context to what else is in this book –

MR. COFFEY: Yes.

MR. KEAN: – I think is very useful for the reader. So it's – ensure it be put in the correct context.

MR. COFFEY: Now, and, again, to – you know, to put things in context – and I'm not suggesting that Mr. Merrow wrote this book, you know, meaning or intending that every line be taken as gospel, okay, but, you know, that is what it is there. And I will just point out – and I do this simply because Scott Shaffer, on behalf of Grant Thornton – at the apparent suggestion of John Hollmann, Validation Estimating, suggested that Mr. Shaffer use this book to familiarize himself with this field.

And this has not been exhibited, but to put this to your point, to put this in context, on page 89 Mr. Merrow also went on to say: In my – and he's talking about financing in this context – in my experience bankers know less about major capital projects than any other group of humans on the planet, including lawyers. And that could cause you at least the trouble.

So, you know, some of this may be written in hyperbole and so on, I don't know, but certainly the Monte Carlo simulation comment, does it – seemingly intended to be taken seriously, and you can read the book at your leisure and make your own determination.

MR. KEAN: Perhaps a –

MR. COFFEY: Yeah.

MR. KEAN: – conversation with Mr. Merrow might provide greater context –

MR. COFFEY: Yeah.

MR. KEAN: – as to his intention.

MR. COFFEY: Now, if we could bring up, please, Exhibit 00959.

THE COMMISSIONER: That one would be on your screen, I think.

MR. COFFEY: It's at –

THE COMMISSIONER: Oh no, at tab 95.

MR. COFFEY: It's binder 4, yes, tab 95.

Thank you Commissioner.

And, Mr. Kean, this exhibit was originally entered last fall; in fact it was entered for you, now it's part of your exhibit. So as best I can tell it was not actually referred to during the hearing.

MR. KEAN: Yes.

MR. COFFEY: And if you just look at page 1 of the exhibit, in particular the first paragraph, he says: "The definition of contingency and how to estimate it are among the most controversial topics in cost engineering. While there is consensus among cost engineers on what contingency is, there is much less consensus on how to estimate it. This lack of consensus and the unfortunate political nature of contingency issues partly explains why AACE International has never" published "a recommended practice for how to estimate contingency."

Now, I point out this was published in 2007, so this is 12 years ago now, and five years before sanction of the Muskrat Falls Project, but – and he goes on then to refer to a study by IPA. And to the right-hand side of the page I'll note he says: "**MONTE CARLO (AS COMMONLY MISPRACTICED).**"

Now, I mean I'm not going to go through this in detail. I'm going to ask you: Were you aware of this article?

MR. KEAN: Yes, I'm aware of the article and, actually, I was just thumbing through.

MR. COFFEY: Yeah.

MR. KEAN: We had an exhibit yesterday which was the Project Controls plan, that I think I –

MR. COFFEY: Yes.

MR. KEAN: – prepared in 2011.

MR. COFFEY: Mm-hmm.

MR. KEAN: That Project Controls plan actually references this particular article.

MR. COFFEY: Yes.

MR. KEAN: Again, the most – so awareness, yes, but of course we – from a Nalcor perspective, we sought out expertise in this area in which we secured it through Westney in terms of risk management modelling practices and assessment practices to help where we had, you know, internal limitations, you might say.

MR. COFFEY: Now, I'm glad you mentioned that because, and could – oh, sorry, Commissioner, I have to go get my computer.

Now, yesterday, you know, when you were answering questions from Mr. Collins – if one looks at page 93 of the transcript – or I guess the draft transcript – and it – to help you put this in context, Mr. Collins had said to you: Well, I understand that the other place that labour productivity risk was incorporated was a tactical risk analysis. And he says: And my understanding of how the tactical risk analysis worked was that for each of a range of a package, the project was broken into various packages and for each package a best-case and worst-case scenario was chosen. Is that broadly right? And you responded: That's correct, based on the identified tactical risk and the general parameters regarding the inputs to the estimate. I like to call it sometimes estimate uncertainty.

And then he goes on to say – Mr. Collins: So if we go to staying inside this document, P-00130 at page 239, we see, again, a number of packages, and for each there's the DG3 estimate and the best cost in blue and the worst cost also in blue. My understanding is that these best costs and worst costs would've been fed into a Monte Carlo simulation by Westney. And you responded: Yeah, Westney has a model and they take, you know, the estimate and, that's right, it goes in – it's their modelling methodology, a bit of a black box to us to a degree. And Mr. Collins says: Yeah.

Why did you refer to it as a bit of a black box to us?

MR. KEAN: Quite simply that from the aspect of while each consultant typically has, you know, certain parameters that they use in the modelling, Westney called theirs a PRIMs. And I understood that they had – you know, their view was – or what we understood from them was that they had to manage it in terms of

picking the right distributions to model the uncertainty regarding the risk and look at correlations between the risk elements and so on.

So in that regard that was, if you would, back office work by Westney that, you know, we weren't into their machine to know how some of that worked, but looked to their expertise and knowledge in that area.

MR. COFFEY: Okay.

Did you ever tell anybody in – to whom you reported that from your perspective Westney's, like, actual methodology was a black box to you?

MR. KEAN: I think we – I don't know if I ever used the words black box. I think it was fairly clear that Westney's role and expertise included the modelling that was Westney proprietary trademark tools and so on. It wasn't something that they were just opening up and giving to the owner. Mr. Harrington was well aware of that, yes; others in the team that were – had seen some of the risk output certainly were. That had come up in conversation, yes.

MR. COFFEY: How about Mr. Martin? Would Mr. Martin or Mr. Bennett have been aware?

MR. KEAN: I don't know if we ever got into that level of granularity in the conversation with Mr. Martin or Mr. Bennett regarding the modelling techniques per se, Mr. Coffey.

MR. COFFEY: Well, in fact, that you didn't actually know how the modelling techniques internally worked.

MR. KEAN: You know, I know the basic premise in my mind.

MR. COFFEY: Yeah, Monte Carlo simulation, yes, but other than that, other than the fact that they were using a Monte Carlo simulation, did you –

MR. KEAN: No, we – there was basic understanding of the type distributions that Westney were using, be it, you know, beta-PERT distribution, double triangle, triangular distribution and so on. So – but, at the end of the

day, I didn't see the final distribution selection or the correlation that was within Westney's area of expertise. And they had a good – they had competency in this area, they were doing this for multiple clients.

So our job was to help, you know, articulate and discuss the risk, and we looked to them to – to ensure that that's reflected in the modelling parameters, accordingly.

MR. COFFEY: Now, in relation to – of their modelling, at the DG3 stage, I believe P-00130, which is the document that has been referred to innumerable times here, if we could bring up, please, P-00130 – thank you. Page 264, and for you, Sir, it's a (inaudible) – it's tab – binder 2 – tab 16.

THE COMMISSIONER: So you're still gonna have to look at your screen, I think, 'cause it's only the first page.

MR. KEAN: Thank you. (Inaudible.)

MR. COFFEY: It's at – page 264, I believe – 264.

THE COMMISSIONER: Wanna try it again?

UNIDENTIFIED MALE SPEAKER: Okay.

MR. COFFEY: Yeah, the computer's frozen.

CLERK: That is page 264.

MR. COFFEY: I apologize. I was thinking it was the same. And I apologize, Commissioner.

If we just scroll down, this is the Estimate Accuracy Analysis for the project, and go to, please, page 272. I apologize, Commissioner, I thought – frozen.

Page 272? Thank you.

Now, Mr. Kean, this is the Tactical Risk Analysis Results, and this is for the – yeah, the Tactical Cost Estimate Risk Analysis for the MF, which, in this context, is Muskrat Falls generation, the LITL, the transmission line to the Island, and the LTA. And I'd ask you – what I'm gonna ask you to look at is to the extreme right-hand side of the graph, the base of the

graph. The last figure out there is \$7.3 billion, isn't it?

See that to the right?

MR. KEAN: You're at – oh, it's \$7.3 billion, yes.

MR. COFFEY: Yes.

So, this would – that \$7.3 billion would represent what, in the context of this graph?

MR. KEAN: It would – it would be somewhere closer to the 100 per cent cumulative probability, somewhere in that higher range, according to that.

MR. COFFEY: Yes, and that would be – and this would encompass what? \$7.3 billion would be the cost of the – of Nalcor's part of the project – of the overall project, which would include the base estimate and all the contingency, but not strategic risk and – but it would also not include escalation. Correct?

MR. KEAN: That's correct.

MR. COFFEY: Okay.

MR. KEAN: I think, just for the Commissioner's –

MR. COFFEY: Sure.

MR. KEAN: – benefit, is that – in this case, Westney puts a lot of focus around the centre –

MR. COFFEY: And –

MR. KEAN: – centre of the range, called the predictive range, noted there as P25, P75.

MR. COFFEY: Yes.

MR. KEAN: Things on the extremes are a bit more difficult to – to interpret.

MR. COFFEY: And, yes, and we've – I thank you for that. And we've heard that before and – I'm not suggesting particularly, but there's a point where I'm going with this, okay. If you could, you just bear with me.

MR. KEAN: Sure, I just wish to make –

MR. COFFEY: Yeah.

MR. KEAN: – sure the Commissioner was –

MR. COFFEY: And –

MR. KEAN: – aware –

MR. COFFEY: – he is, I believe –

MR. KEAN: – (inaudible).

MR. COFFEY: – he is.

Page 274, now that's for the combined project; 274 is the tactical risk analysis results for the Muskrat Falls generation facility, which is just the power plant and the dams. And if we look out there to the extreme right, like up around the 99th or so percentile, it's \$4 billion, isn't it?

MR. KEAN: Yes.

MR. COFFEY: Go to page 275, please. This is for the Labrador-Island Link, as I refer to it; the LITL, as they do. If we go to the extreme right, again, at the very high, you know, the – next to 100th percentile, we are up around \$3.5 billion.

MR. KEAN: Yes.

MR. COFFEY: And page 276, here, this is the Labrador Transmission Assets against the Tactical Risk Analysis Results produced by Westney for DG 3. I believe, to the extreme right, again, just under 100th percentile, we are at \$1.1 billion, aren't we?

MR. KEAN: According to this chart –

MR. COFFEY: Yes.

MR. KEAN: – yes.

MR. COFFEY: Now, if we can go, please, to – just scroll down a bit, please. I'm – I thought I did – had note it, and I haven't. Go on. Up – okay, it's just time, keep going. Keep through, keep going through. Just keep going. Keep going – ah, here.

Here on page 290, is the strategic risk graph or output for the entire project, for the MFLITL and LTA, Potential Strategic Risk Exposure. Just under 100 per cent, there is \$1.2 billion. And I – when you add 4 and 3.5 and 1.1 and 1.2, you get \$9.8 billion, and that does not include the \$300 million in escalation.

So, as it turns out, when you look at the Westney's graphs, the sum total of the extreme right-hand side of all their graphs, plus the \$300 million in escalation, and including the strategic risk, adds up to \$10.1 billion, roughly. Which is about where that project is now.

Now, might I ask you this, Mr. Kean, you would have looked at those graphs years ago, okay? Would it ever, in your kind of wildest dreams have occurred to you that the project would end up costing \$10.1 billion?

MR. KEAN: So, I guess first the –

MR. COFFEY: Based upon the graphs, would you have gone looking for the graphs and kind of added them up, like I just did?

MR. KEAN: – it's – I think Westney makes a point on slide 27, on page 273 –

MR. COFFEY: Yes.

MR. KEAN: – whereby it wouldn't be appropriate to do the additive –

MR. COFFEY: Yes.

MR. KEAN: – because of the nature of the modelling mechanisms.

MR. COFFEY: Yeah.

MR. KEAN: It says: Please note that due to the nature of probabilistic analyst [sp. analyses] that the individual sub-project analysts [sp. analysis] are not directly added to the overall project results.

MR. COFFEY: And that's –

MR. KEAN: – and that leads to, on page – page – I think it's – they give a total cost curve, we just saw and – excuse me, on page 292.

MR. COFFEY: Place – 292.

MR. KEAN: Which is the total, inclusive of contingency, tactical and strategic risk, base estimate, but excludes escalation.

MR. COFFEY: Yes.

MR. KEAN: So –

MR. COFFEY: So –

MR. KEAN: – so of course, (inaudible) right there is not the \$10 point – or the \$10 billion (inaudible).

MR. COFFEY: Oh no. And I understand, frankly, mathematically why. But the – even the \$8 billion that's there, just to the extreme right, plus the \$300 million would be \$8.3 billion, which would be well under the \$10.1 which is apparently where we currently sit.

But my point being this, and I am not being critical at all, Mr. Kean; practising in the world you did and do, it wouldn't have even occurred to you – particularly bearing in mind their admonition not to add them up – but it wouldn't even occur to you to go out to the 100th percentile, as it were – go through all the charts and add them all up and say that's the outside. I'm not – it wouldn't have even occurred to you – I'm not suggesting it should have. It wouldn't have –

MR. KEAN: (Inaudible) –

MR. COFFEY: – it didn't occur to you and it wouldn't have occurred to you?

MR. KEAN: – are you asking me a question?

MR. COFFEY: Yes, I am. I said it didn't occur to you; am I correct?

MR. KEAN: So my view is to look at the total curve.

MR. COFFEY: Yes.

MR. KEAN: So, that curve that we see on slide 292, is a curve, you know, that had to be reviewed, and looked at by various individuals. So, we're – very important to look at while –

just like the estimate, it's a base, one number, but in reality there is a range of outcomes –

MR. COFFEY: Hmm.

MR. KEAN: – and that preparation and preparedness that you could be anywhere in that range of outcomes is important. Unfortunately, projects often don't do better than now, on the lower end of the curve. They do sometimes.

MR. COFFEY: And here though – this project hasn't even done as well on the high end of the curve. So, what I'm – I'm suggesting to you, like, even in the predictive range of the P75, which is – here it's \$6.737 billion, that – well, you know, one might have come to the view, well, that's about a half a billion more – worst-case scenario, half a billion more than the 6.2, to echo, apparently, Mr. Martin's remark to Ms. Dunderdale – Premier Dunderdale – but other than that it would have occurred to you to think: well, you know, like Coffey just did then, we'll go through it and add it up to 10.

MR. KEAN: So, from a perspective of the range of outcomes on a project, as I indicated that IPA were engaged early –

MR. COFFEY: Mmm.

MR. KEAN: – you know, the aspect of where projects fit, the track record of megaprojects is an area that I am very familiar with. And so – aware that sometimes projects exceed plan and reserves, likely due to outlying events. Sometimes referred to as black swans or some kind combination of strategic risk, or other events that may occur or may be driven by unique characteristics of the project itself.

I think that's what's important, and I think as an industry there's been various attempts to try to gather those experiences from various projects to understand how they can translate into better predictive outcomes. And that's where –

MR. COFFEY: (Inaudible.)

MR. KEAN: – firms like Westney have certainly made and established themselves. And there are others, like Mr. Hollmann.

MR. COFFEY: And –

MR. KEAN: (Inaudible.)

MR. COFFEY: – I believe in one of two of the exhibits – I haven't referred you to them, but they are there under your name now – Mr. Hollmann, in more recent years, is talking about chaos theory – utilizing chaos theory as part of this analysis process. So the point being that – to your point, that people are trying more and more, or find better ways to do the modeling, but back then it was Westney's view – you had Westney's view, and you hired them, fair enough – you had Mr. Merrow's published view of the usage of Monte Carlo simulation, in the era of 2011.

And I will ask you now, in terms of at sanction in 2012 – now in the lead-up to sanction, and at sanction itself – in your world, trying to look back on it, what did you at the time think was probably the worst-case scenario, in terms of cost? Or did it ever – did you ever consider it?

MR. KEAN: I can't – think about what I thought at that point –

MR. COFFEY: Okay –

MR. KEAN: – was the ultimate source cost, you know. And my most important thing was ensuring we had good quality risk analysis that provided input to facilitate Westney's modeling; and that the impact – the – what came back from that was a credible cost distribution curve that people could be made aware of, and they could make decisions themselves as to where they wish fund this project.

From a project team perspective, the budget we get to work with is, you know, that P50 including tactical. But where the project is funded, that's a matter of – I guess as I referred to words before – risk appetite, you know, and trade off: what other opportunities may there be? So that's a – that's – from a project team perspective, we're focused on a capital cost and schedule. But, of course, in investment decision-making, which this project is, there are a lot of other variables that factor into that that are, you know, to be quite honest, a little bit invisible to us as project team members.

MR. COFFEY: Just one final point, Commissioner, if I might be allowed, P-00130, page 296.

Now, this is Mr. Westney's or Westney Consulting's time-risk exposure – potential time-risk exposure to full power, production for the DG3 analysis. And if we look at September of 2020, where did they have that then? Where does that lie on the curve?

MR. KEAN: Pardon me, Mr. Coffey?

MR. COFFEY: September of 2020, you look at the bottom full power. See the bottom there –

MR. KEAN: Yes, September 2020.

MR. COFFEY: And what does that correspond to in terms of – because this is for full power. What's the percentile there? Ninety-fifth percentile –

MR. KEAN: (Inaudible)

MR. COFFEY: – have I got that – you know, give or take a bit –

MR. KEAN: Yes.

MR. COFFEY: And that's, apparently, now at least, currently predicted, that's more or less where full power is – August of 2020. So back when the DG3 analysis was done by Westney, one would have to go to the 95th percentile to get a sense of – to find what is expected now to be full power. You would have to be that far out on the curve.

MR. KEAN: I think what's important for the Commissioner's and everyone's benefit in that regard is that Westney's analysis is reflective of the view point of the risk at that point and time, the contemporaneous information that existed. So I don't think it would be fair to say that Westney didn't project out far enough. It would be fair to say that the project team's view of the outside side of the first and full power and – really – which is really driven by the individual activities that need to be undertaken to construct the Muskrat Falls power plant, showed that there could be – you know, we talked about first power could be 11 to 21 months out –

MR. COFFEY: Mmm.

MR. KEAN: – I think we said. That was a P25 to a P75. So, Commissioner, I guess that would say that rather than mid-2017 as was targeted, that could be in that – you know, the first power could be, you know, well into '19.

So, I guess from a perspective of – I always like to bring people back. It's the same analysis process as was used to define the tactical risk, the strategic risk and the time. It's the same consultant; it's the same people. It appears that the time analysis is a bit – is holding, you know, to be a bit more accurate unfortunately.

MR. COFFEY: Thank you, Commissioner.

I appreciate the forbearance.

THE COMMISSIONER: Thank you.

All right, I think we'll take our break here, and then after that will be the Consumer Advocate. So, 10 minutes.

CLERK: All rise.

Recess

CLERK: All rise.

Please be seated.

THE COMMISSIONER: All right.

Consumer Advocate.

MR. PEDDIGREW: Good afternoon, Mr. Kean.

MR. KEAN: Good afternoon, Mr. Peddigrew.

MR. PEDDIGREW: Chris Peddigrew, representing the Consumer Advocate.

I won't keep you up there too long this afternoon. I do have some questions, and some of the questions arise from the evidence you've given already, I guess, the last – today and yesterday.

The first question relates to – and this is something I read in the – in your interview

transcript from February of this year, and it referred to whether there were particular – there’s particular documentation or not relating to cost forecasting each month. And I believe your answer was that there was no particular document for doing updated cost forecasting, but it was part of your regular project management team monthly reports. Is that accurate?

MR. KEAN: No, I don’t believe that’s what I said. I said –

MR. PEDDIGREW: No?

MR. KEAN: – there’s a separate cost forecasting that – exercise that leads to a summary that’s gone into the project monthly reports, so every month there’s a monthly cost review meeting – it culminates at a monthly cost review meeting. And I know there’s a number of, let’s say, 11 by 17 sheets that summarize the – the contingency drawdown, the open trends, the open changes, you know, what’s happening, the key risks and so on, and that’s – there’s some curves and so on. That becomes an official update that’s done every month that – once it’s, I guess, acknowledged internally, it then is printed or published as part of the monthly progress report.

MR. PEDDIGREW: And where do those progress – monthly progress reports get distributed? Or to who do they get distributed? Or did they?

MR. KEAN: Well, there’s a – there’s many different monthly progress reports. There was a stewardship –

MR. PEDDIGREW: The ones containing these cost updates is, I guess, the one I’m ...

MR. KEAN: Uh –

MR. PEDDIGREW: Or am I misunderstanding?

MR. KEAN: Well, there – I guess, Mr. Peddigrew, there’s a – that information at a summary level is in the monthly progress report that’s distributed, I guess, within Nalcor. I don’t know beyond Nalcor who gets it, to be honest. That – I wasn’t distributing that. That would be the project controls team.

MR. PEDDIGREW: And – sorry. And just to interject for a moment. When you say distributed within Nalcor, I mean, does it – at what level does the –?

MR. KEAN: I know the project team. I think corporately the Nalcor executive committee for the project would have it, for instance. Beyond that I don’t know. But inside the front page of that – those monthly reports, there’s a distribution list, so it would be indicated who receives them.

MR. PEDDIGREW: Okay.

MR. KEAN: And there are other monthly reports that are issued, you know, to various stakeholders. I can’t confirm – my memory is not that good to know exactly what’s in each of those.

MR. PEDDIGREW: Okay.

MR. KEAN: But there’s – you know, there’s a list of those. And there’s actually a procedure that specifies which reports need to be produced on a monthly basis.

MR. PEDDIGREW: Right. And the – I guess, the part of the report dealing with cost updates, is that in an appendix or is it – you know, is it a particular section in these monthly reports?

MR. KEAN: Well, as I said, the monthly report is a summary –

MR. PEDDIGREW: Right.

MR. KEAN: – of the detailed cost engineering work that’s done throughout the month. But I – it’s probably captured in the executive summary and there’s details within the report. I can’t recall – and that varied over the years.

MR. PEDDIGREW: Okay.

MR. KEAN: Format –

MR. PEDDIGREW: Format of it.

MR. KEAN: – you know, over the number of years. It had a different look and feel, you might say.

MR. PEDDIGREW: Right.

MR. KEAN: It probably has a different look and feel now than when I last saw it, to be honest.

MR. PEDDIGREW: And the cost updates and that, I believe you said were based on a deterministic method for determining cost updates as opposed to a probabilistic?

MR. KEAN: Probably the best thing to call it would be more of an expected-value approach whereby it matured over time. Initially it was a – sometimes single-point numbers, then it became a best and worst, and then it became a bit more expected-value approach, where you were looking at: what's the probability of that occurring and what would be the value of it?

MR. PEDDIGREW: Something short of a full QRA?

MR. KEAN: Of course, yes.

MR. PEDDIGREW: Some questions yesterday, as well, about the – I believe it was about the amount of steel, the number of tonnes of steel that – and I think, early days, I guess, there was an estimate of about 13,000 tonnes for the – I'm talking about for the transmission line project, now. And eventually by DG3 it was up to 37,000 tonnes. Is that correct?

MR. KEAN: It's referenced in the Basis of Estimate as a summary. I think it's 14,000 and something for DG2, and – I can't recall – 34 or 37 – 34,000 tonnes, I think, for towers and steel at DG3.

MR. PEDDIGREW: Right.

MR. KEAN: The DC line only.

MR. PEDDIGREW: And then it ended up being somewhere in the range of about 50,000, you figure, by the time you had left the project?

MR. KEAN: That was an approximation of mine, but I did indicate to Commission counsel that that would be available as part of the final change orders to Valard to show what the actual quantities installed were.

MR. PEDDIGREW: Okay. It went up –

MR. KEAN: But it's in that range, Mr. Peddigrew.

MR. PEDDIGREW: Okay.

And I believe the question was put to you that – well, the estimate was wrong, and I think you responded: No, the estimate wasn't wrong, it was – the scope changed. Is that ...?

MR. KEAN: Well, we did have a lot of discussion yesterday about reliability. And from an engineering perspective what's very important to know is that the climate loads, or the weather loading that are on a structure and how many years you expect that structure to – what kind of weather or what kind of storm event you want that structure to withstand, has a large influence on the design of that structure. So when you change and say you want a transmission line to withstand a storm event that's only going to occur every 150 years, of course that makes a beefier design, you might say –

MR. PEDDIGREW: Right.

MR. KEAN: – beefier structures.

MR. PEDDIGREW: Yeah.

So you – I think you categorize it as a scope change based on wanting bigger, stronger towers, supports.

MR. KEAN: It was never categorized internally that way, but I'm – you know, from a perspective – if you go – you know, you're changing the project requirements in that regard, so yes, I would – it would probably fit in one of those categories as a scope change, yes.

MR. PEDDIGREW: You said yesterday as well, in relation – I know we've canvassed the issue of the amount of geotechnical work that was done, or the – or I guess the lack of geotechnical work that was done, that's been canvassed. So I'm not gonna ask you a lot about that.

But you did say yesterday that you'd have to do an awful lot of geotechnical work in order to

have certainty, and I believe you said today, as well, that even if you had done it, you know, given that there were – on some towers with the four footings might have different, you know, a different type of foundation. Even if you had done geotechnical work, I guess, you're not certain that it would've, I guess, produced a lot more in terms of beneficial information.

But are you saying that to gather that type of information would be cost prohibitive? I think you said today you thought it would be \$100 million to do that or – and I know you were estimating. But is that your reason for, I guess, leaning towards not having done that?

MR. KEAN: Well, first of all, I wasn't the decision-maker to do or not do that work in –

MR. PEDDIGREW: Okay, so who was –

MR. KEAN: – pre-sanction.

MR. PEDDIGREW: – who was the decision-maker on that?

MR. KEAN: That would've been at the – I would expect it would be the project manager at that point in time. Kyle Tucker probably made a – in all likelihood it would've been Mr. Gilbert Bennett. Mr. Paul Harrington would've been engaged therein.

MR. PEDDIGREW: And –

MR. KEAN: And the decision, as I said, would've been driven around the risk and on the EA side, primarily. But it – you know, all individuals would've been aware of the challenges and the effort to undertake such a geotechnical program in such remote locations.

MR. PEDDIGREW: Right.

From Valard, Mr. Ducey and Mr. Williams, and I can't remember which one of them gave this information, but they said for hundreds of thousands, perhaps millions of dollars, you could've had some detailed geotechnical information.

Are you – you gave the figure today of a hundred million. I mean, there's a big gap in those estimates. Do you – what do you have to

say about their comment that for hundreds of thousands, perhaps millions –

MR. KEAN: So, I – you know, I can't speak to the basis of the numbers that Valard gave, you know, what – when they said that, what level of geotechnical.

My guesstimate, as I gave to – indicated this morning, was in recognition of the effort. If we were to have to undertake the means to get excavators in there to do big – fairly sizeable excavators in to the interior of Labrador, it would've been challenging. It would've come with a lot of cost for not only to, you know, to be able to facilitate the access of that excavator in, but also emergency response, capacity, you know, logistical support, fuel, camps and so on.

MR. PEDDIGREW: Yeah.

MR. KEAN: So it's a big program.

MR. PEDDIGREW: So for whatever reason this decision was made, a variety of reasons, maybe a decision was made not to do it –

MR. KEAN: I guess, Mr. Peddigrew, what's most important is that the foundations that are installed are, you know, at the end of the day, the right foundation in the right location.

MR. PEDDIGREW: Yeah, I have some questions about that as well, but I guess just for now ...

So the – I guess the lack of information around geotechnical work and some of the questions that you were asked this afternoon about a risk and how you quantified risk or whether something was factored into contingency or for strategic risk, tactical risk, did the lack of information about the geotechnical information, how did that get factored in to your risk assessment?

MR. KEAN: Well, it was an open risk.

When evaluating risk – I think it was – the implications of not having the geotechnical information was identified – primarily, would it create uncertainty on the quantity of each type foundation that may need to be installed.

Secondly, would it pose a risk on geotechnical claims from a subcontractor?

MR. PEDDIGREW: I'm thinking more about it from a –

MR. KEAN: Yep.

MR. PEDDIGREW: – a quantification point of view.

MR. KEAN: And that's where I'm going, Mr. –

MR. PEDDIGREW: Okay.

MR. KEAN: – Peddigrew.

So, on the first order, with regards to the quantification, the SNC designers and the construction team identified that they didn't see a large exposure there, and that was documented in the recommendation regarding the support on the basis of estimate. The variability would not be significant across the course of the line.

So with that, that formed an input to the risk analysis and a view on any uncertainty.

MR. PEDDIGREW: Yeah. And do you know why they were of that opinion, what they based that on?

MR. KEAN: No, I don't know at this point. It would be their general experiences.

MR. PEDDIGREW: Okay.

MR. KEAN: And I guess, Mr. Peddigrew, just to close up that, the second part had to deal with the geotechnical side. It was – we went for a unit price contract to deal with some of that uncertainty from a construction –

MR. PEDDIGREW: Right.

MR. KEAN: – perspective.

MR. PEDDIGREW: Which left – I mean, there was no risk in that for Valard in that sort of model. I mean, depending on –

MR. KEAN: Correct.

MR. PEDDIGREW: Right.

Mr. Ducey and Mr. Williams, again, I can't remember which one of them gave this evidence, and their transcripts from the evidence they gave is not available at the moment, but one of them did indicate that they had never seen a transmission line project of the length of the LIL proceed with that level of geotechnical information.

Do you have any comment on that?

MR. KEAN: That's their individual experiences. Their –

MR. PEDDIGREW: They're from a company that has a lot of experience in this type of work. Would you agree with that?

MR. KEAN: That both are from a company that have a lot of experience? Yes, most definitely.

MR. PEDDIGREW: You disagree with that comment from them?

MR. KEAN: No, I don't, but all I – I did state yesterday that I was, and I think I stated in my discovery testimony, that over the number of – past number of months I've been supporting an entity bidding a transmission project of 1,600 kilometres, and there's no geotechnical information at all, and it's a full lump sum contract, EPC.

So there is a spectrum, I guess. Is that good? No, I'm just giving you as an example, and that's done being – that's a project being promoted by a very reputable firm that's well-known to – to individuals, and it's a Canadian project.

MR. PEDDIGREW: Okay.

The DG3 estimate for the right-of-way clearing was about \$184 million. Is that – does that accord with your recollection?

MR. KEAN: I can't recall if it was 184 but it's between 150 and that 60, 80, somewhere in that numbers.

MR. PEDDIGREW: Okay. I believe it was 184.

And then over the course of the – there was about \$187 million in change orders. Does that sound about right as well?

MR. KEAN: I know the overall right-of-way cost was about \$450 million.

MR. PEDDIGREW: Right, okay. And I believe change orders accounted for about 187 of that.

So, I guess one of the big causes of the change orders was the decision to go with the full access road which, I understand from your evidence, you – you said you were supportive of that in the beginning. You thought it was a good thing to have full access to the transmission line as opposed to just helicoptering in or going in with an ATV. Is that, I guess, a fair assessment of your –

MR. KEAN: Well, I –

MR. PEDDIGREW: – feelings at the –

MR. KEAN: – I believe –

MR. PEDDIGREW: – time?

MR. KEAN: – I indicated that the requirement for access to the extent that was developed – developed primarily from a change from what was required to enable construction. So the original planning basis did not – was assumed that there would be only partial road access along the transmission line.

MR. PEDDIGREW: Right.

MR. KEAN: And some sections only accessible at – by winter zones and some by helicopter. So –

MR. PEDDIGREW: (Inaudible.)

MR. KEAN: – a combination of all three.

So, as the final design became – and the increased sizing of the structures, and the practicalities of the limited winters, we had three now, the need to construct – combine that with some of the geotechnical challenges we had, the need to construct more access became very apparent.

MR. PEDDIGREW: For purposes of construction, and not just for access for maintenance after the fact.

MR. KEAN: The primary intent was to construct it for construction. However, during the construction of the access there were measures made to establish that from a long-term perspective. And examples of that are bridge abutment sizing, bridge span lifts.

MR. PEDDIGREW: I guess my question is, my understanding from your evidence, and maybe I misunderstood it, that when the decision was being made, I guess leading up to the time of the DG3 estimate, you were of the view that a full access road should be carried out as opposed to a partial access road, partial access to helicopters. Or did I misunderstand that?

I believe that Newfoundland and Labrador – sorry, Newfoundland and Labrador Hydro, individuals from Hydro, were the ones who indicated a full access road was not required.

MR. KEAN: So, the design philosophy around the project – so from a designer perspective, engineers start with design philosophies. The design philosophies, and also operating philosophies, those that were produced by what we call the technical and design integrity group, which were staffed by Newfoundland and Labrador Hydro expertise, indicated that for transmission lines they did not require permanent access along those right-of-ways. They would service them by either a combination of all-terrain vehicles, tract equipment and so on.

MR. PEDDIGREW: And did you disagree with that, I guess is my question?

MR. KEAN: Well, it wasn't a point for me to disagree or agree. It was a –

MR. PEDDIGREW: You had no feelings on it one way or the other?

MR. KEAN: No, it wasn't an area I was involved in, to be quite honest with you. I'm look – when I made those comments yesterday, I was looking in hindsight –

MR. PEDDIGREW: Okay.

MR. KEAN: – where I saw things as the project started to develop, okay.

MR. PEDDIGREW: I misunderstood. I thought you were saying that was your view when the decision was made.

MR. KEAN: No, I didn't have that – my expertise and knowledge, they are the – that's the knowledge source.

MR. PEDDIGREW: And you say that's from Newfoundland and Labrador Hydro. Would that be Kyle Tucker?

MR. KEAN: Yes. And, you know, individuals – there was a team of individuals, but they sought the expertise and knowledge from others within Hydro, transmission rural operations groups and so on.

MR. PEDDIGREW: Just a couple questions about the foundation selection process. So, Mr. Williams and Mr. Ducey – and, again, I can't recall which gentleman gave this evidence – but indicated that there was often disagreement between Nalcor and Valard about the type of foundation to be used.

I guess there were probably times when they were advocating for a more expensive type of foundation and were getting push back from Nalcor; indicated as well that in situations like that they would have to go through St. John's to get a decision on which type of foundation to use. There was nobody on site to make a decision in the field, and they found that frustrating and they found that it caused delays, it caused them to have to move out of sequence.

Were you aware of those concerns that Valard had?

MR. KEAN: Yes, I was.

MR. PEDDIGREW: Okay. And any thoughts as to why that was taking place, why there was nobody in the field from Nalcor, I guess, empowered to make those decisions?

MR. KEAN: Actually, that's not correct, so just let me explain. The foundation process – foundation selection process is a process that

Valard are obligated to produce as part of the – their contract deliverable to us.

MR. PEDDIGREW: When you say obligated to produce, you mean –

MR. KEAN: It's a decision –

MR. PEDDIGREW: – they give you an option?

MR. KEAN: – flow chart. It's a flow chart.

MR. PEDDIGREW: Okay.

MR. KEAN: It's a contractual deliverable as part of the project execution plan that they would prepare. So they would present to the owner – or to Nalcor – what their plans are for foundation selection and that went through various revisions throughout the project.

They used AMEC in the field as their engineers to make the recommendation as to foundations based upon the excavations. The SNC – our field engineers, which were led by a senior SNC geotechnical engineer in the field, and our inspectors, would make that agreement, yes or no. Sometimes there would be contentious locations that would have to come back to the lead foundation engineer in St. John's.

As you can appreciate, we have –

MR. PEDDIGREW: And who would –

MR. KEAN: – foundation –

MR. PEDDIGREW: Who would that be?

MR. KEAN: That would've been Mahendra Patel, who's an SNC gentleman.

MR. PEDDIGREW: Okay.

MR. KEAN: And it may have to come back to the line engineer from a perspective of the – they may wish to move a structure location.

So, for instance, Mr. Peddigrew, you may have a situation when a structure is located – planned to be located in a location and they go there and it's bog at the site, but just 20 metres away there is totally good rock location. So the – of course

from an engineering perspective, the preference is always to have a solid foundation if you can.

MR. PEDDIGREW: Of course.

MR. KEAN: So that – the view was to move it back chain to a rock location, or forward chain. So that would have to go to the line engineers in St. John's and, of course, we were doing foundation installation at various locations throughout the project.

MR. PEDDIGREW: Right.

MR. KEAN: So you had to have a group of, let's say, senior engineers – they were housed in St. John's – to do those checks in the computer to say, yeah, that's good or not. But on the ground we had field geotechnical engineers from Nalcor's – Nalcor LCMC organization that were responsible for, you know, most of the day-to-day activities.

MR. PEDDIGREW: Right. But I guess the evidence of Mr. Williams or Mr. Ducey was that there were times when they needed an answer and they weren't getting it. And they had to wait quite a bit of time and that caused them to have to go out of sequence or caused delays. Do you have any thoughts on that?

MR. KEAN: I can only – I asked my – every week I had a – had a report, a dashboard report come that would show me the number of foundations installed, planned to be installed, the number selected, foundation locations and the time lag between going to a site and when the final installation was actually undertaken. That's the level I monitored at.

So, you know, there are times in 2015 when there was some need to mobilize a geotechnical drilling rig. I think there was – in that fall of 2015 there was some – a lag, but I did ask the engineers to go through that and produce a summary of where the exposure was, and there was – you know, the analysis that was done showed no great exposure.

MR. PEDDIGREW: So, from your point of view, the fault does not lie with Nalcor if Valard is saying that there were delays caused by Nalcor's inability to render quick decisions.

MR. KEAN: And if there was a delay on a foundation selection – there could have been some in a particular instance – it was my view on the aspect of was it concurrent to other activity that was occurring and may have been delayed.

MR. PEDDIGREW: And when you say concurrent to other activity, do you mean partly Valard's fault as well?

MR. KEAN: That could've been Valard's fault, such as the guy anchor installation. So I have not gone through and looked to this at any great degree, but the Nalcor records would surely demonstrate where things are.

MR. PEDDIGREW: And you've mentioned that guy wire or guy anchor issue a couple of times, and I take it that's something that you feel Valard was not doing properly. Can you just elaborate on what you mean by that?

MR. KEAN: I think they had some production capacity limitations early and they had a few failed anchors, but it was more for production capacity that lagged the installation of foundation. So we had to get additional crews, additional equipment mobilized.

MR. PEDDIGREW: But they didn't have enough people to –

MR. KEAN: There was a challenge in the start-up, but that got moved after – you know, as we went into 2015 things picked up pace quite a bit.

MR. PEDDIGREW: Right.

And so would it be fair to say then that your position is that Valard's issues were largely in the early stages of the transmission line and not towards the later stages?

MR. KEAN: I think the ramp-up through the months of November through – I know in the winter of 2015 there were challenges. There were challenges – various challenges through 2015 but not all at the same. There were challenges with groundwater, for instance, and, you know, that really precipitated the need to bring in not one, not two but three geotechnical boreholes, geotechnical drilling rigs, to do more and more investigations where it was deemed to

be unsuitable to install a grillage or a rock foundation. So there were challenges that led to holdups, no doubt.

MR. PEDDIGREW: How were these drilling rigs brought to the place where they needed to do their work? How were they transported?

MR. KEAN: Well, the road was in – the road and right-of-way clearing was ahead of the foundation program. So they came in by float, I guess.

MR. PEDDIGREW: Mr. Williams or Mr. Ducey also gave evidence that there were times when they, I guess, advised Nalcor to use a particular type of foundation, where Nalcor did not follow their advice. And they said, you know, this did occur a number of times. I think they'd said their records show about 50 times where they had to go in after the fact and do – I forget the phrase now – but, basically, I guess, redo some of the work based on – and follow their initial recommendation. Are you aware of that occurring?

MR. KEAN: So I do recollect that there were discussions and debate that Nalcor wished to have a grillage foundation installed at a location. Sometimes the foundation – the engineer of record, the lead foundation engineer felt strongly that it could have – that a grillage would be suitable.

MR. PEDDIGREW: And that's somebody from SNC?

MR. KEAN: Yes.

MR. PEDDIGREW: Okay.

MR. KEAN: Mr. Mahendra Patel.

MR. PEDDIGREW: Right, okay.

MR. KEAN: And the – in some cases there would – had to be a pile installed, but at the end of the day there were places where Valard installed grillage foundations. They had to take them out of the ground and reinstall them, and the reinstallation went quite okay and there were quite a bit of forensic studies done on each of those by the Nalcor site team, aided by – they had some support from Qualitas.

MR. PEDDIGREW: But I guess in terms of Mr. Williams or Mr. Ducey's evidence about Nalcor not following the initial recommendation of Valard, are you aware of that happening?

MR. KEAN: No.

MR. PEDDIGREW: Not – as far as you know that did not happen?

MR. KEAN: No. There were areas where there was a – some locations that there was a dispute, whether it was suitable for a grillage. In those situations, a geotechnical drill rig was brought in to verify the conditions, the (inaudible) –

MR. PEDDIGREW: Yeah.

MR. KEAN: – conditions.

MR. PEDDIGREW: And just for clarity, so you're also not aware of there being about 50 instances where reinstallations were required as a result of Nalcor not following Valard's recommendation.

MR. KEAN: All reinstallations that occurred during the period were – occurred during the period of 2015 and they were reinstalled with the same foundation, I think, that when it came out of the ground.

MR. PEDDIGREW: Same foundation.

MR. KEAN: Yes.

MR. PEDDIGREW: Okay.

MR. KEAN: There might've been an exception of a pile or two but, generally – and I don't know any – I've never heard of that number 50 before. I know –

MR. PEDDIGREW: Yeah.

MR. KEAN: – there were –

MR. PEDDIGREW: And I think it was an approximate number given.

MR. KEAN: No, I – so from a perspective, Valard had challenged it with concrete quality that required them to bust out some foundations, but I do recall six to seven grillage structures in

the first couple of hundred kilometres of the line that – where there was (inaudible) and they couldn't place the tower on the foundation. And during the winter – during the summer of 2015 they removed and reinstalled those.

MR. PEDDIGREW: Okay.

MR. KEAN: But it was the same foundation installed –

MR. PEDDIGREW: Okay.

MR. KEAN: – in kind.

MR. PEDDIGREW: Okay and that's all you're aware of?

MR. KEAN: That's all of 'em.

MR. PEDDIGREW: Okay.

MR. KEAN: The site geotechnical engineers would be the most closest to this.

MR. PEDDIGREW: And who would that be?

MR. KEAN: There was a group of them but the leader would've been Nazmi Boran.

MR. PEDDIGREW: Okay, who is he or she employed by?

MR. KEAN: SNC-Lavalin.

MR. PEDDIGREW: Madam Clerk, if we could call up Exhibit P-01677, which is the Grant Thornton report. And I believe, Mr. Kean, it's in binder 3, tab 56 for yourself.

And page 45, please. And, Madam Clerk, if we could scroll down towards the bottom of the page, right about – just a little bit further – oh, and up a little tiny bit, there we go. Thanks. Perfect.

So, Mr. Kean, if we look at lines 8 to about 21, this is Grant Thornton's summary based on a review of a report, I believe, from the Nalcor project team about the reasons for the increases in the transmission line and the right-of-way. And I guess what they've gathered from what the project management team gave them is that the reasons from the project management team

for the transmission line increases would be a "Reliability driven change; Environmental assessment driven change; Performance, productivity and market changes; Contractor performance." And under the right-of-way again, we can see the four listed there: "Constructability driven change; Reliability driven change; Contractor performance" – and – "Market place drive change."

So, I think we've covered most of these areas in your evidence today and yesterday.

Just in relation to line 21, "Market place drive change," could you just explain what that means?

MR. KEAN: I guess it would have been issues regarding the competitive nature of the market. I think we had a key risk identified at DG3. I know we did.

MR. PEDDIGREW: Okay.

MR. KEAN: On that, it's in the QRA binder. It might be key risk 24, 28, that number, 26.

MR. PEDDIGREW: Okay.

MR. KEAN: And it deals with the aspect of the ability of high-voltage power line contractors and various mitigations, and, of course, it was a busy – you know, we were coming off the big build in Alberta and other parts, so, you know, we were – it was certainly some market-price concern, but it wasn't a prominent driver on the cost exposure for the Labrador-Island Link or the AC line.

MR. PEDDIGREW: Okay.

I mean, when I review these reasons – and, you know, they came from the project management team – you would agree with that?

MR. KEAN: Yes.

MR. PEDDIGREW: Okay.

And, you know, I look at something like contractor performance, which would seem to suggest that the contractor was somehow at fault, and that's under both categories there. I don't see anything in here about, necessarily

there was any fault with Nalcor or with the project management team. And, I guess, you know, looking back on it now, do you accept or do you have a feeling that there was any responsibility on Nalcor and, in particular, the project management team for these costs overruns of approximately \$900 million on the LIL?

MR. KEAN: So I think in one of the binders that we – there's a step chart in volume 4 whereby it references some contribution of perhaps errors and omissions, you know.

MR. PEDDIGREW: In relation to what?

MR. KEAN: In terms of the overall cost growth from 6.2 to 10.1. There's some amount of money there that's allocated. You know, again, it's a viewpoint of how money could be allocated. I think as I'd given evidence before that the – you know, the binders – as I understood, the input I provided to the Nalcor project team, particularly Paul Harrington, was to give feedstock information into a viewpoint of how cost changed over time.

I guess it never – you know, when one provides that input, you know, where does it go? So amount of – you know, that would take a very deep analysis by Grant Thornton or other firms to understand, you know, the actual growth of each of the particular – or – you know, where all, what was contributing to the money and the growth.

MR. PEDDIGREW: I'm just – I'm interested in your views. I mean, looking back on it, do you – I mean, you were intimately involved with the transmission line aspect of the project. I'm interested to hear what you think or if you think that there's any fault that lies with the Nalcor project management team in relation to why the LIL went over budget \$900 million.

MR. KEAN: So I think it would be difficult for me to give an objective view of that. I think that's really, you know, part of the Commissioner's mandate.

MR. PEDDIGREW: Give it a try. Just what's your view on –?

MR. KEAN: So I provided, you know, some input into these volume fours as to how things changed over time and the contributing factors in particular and the aspect of the transmission link of \$800 or \$900 million growth. I did present a fishbone diagram there with seven major drivers. You know, so, I think the project team did they best with what they had.

MR. PEDDIGREW: Would you agree that some of those cost overruns would be attributable to the project management team. I mean, we list here – we see contractor performance, reliability driven change, which seems to suggest that, well, people wanted something better, so that drove the cost – or the environmental assessments, again, something that would seem to suggest that it was outside the control of the project management team. I'm wondering do you have a view that there are things that were within the project management team's control that it didn't do properly and that resulted in –

MR. KEAN: Well, this is a hindsight view of course.

MR. PEDDIGREW: (Inaudible.)

MR. KEAN: You're asking me to look backwards.

MR. PEDDIGREW: And I'm not asking – I'm not trying to judge you based on hindsight. What I'm trying to do – and I think hindsight is useful in this way – is to look back – for you to look back and say we could have done this, we could have done that. Part of the reason for this Commission of Inquiry is to make sure this kind of thing does not happen again. And if you have something to add as to how we can avoid, then I think it's valuable.

MR. KEAN: Sure. So in the case of the transmission lines specifically, if I would, 'cause I was much more actively involved in the management of that, we had \$900 million of growth on the transmission lines. We are aware that, you know, there is probably upwards of \$300 million of that is driven by access – right-of-way clearing and access.

So we talked about the challenge and the difference of what access was required. You

know, I think if there was greater clarity up front, then access would have been required for longer term need. The access could have been optimized and more effectively planned and engineered up front.

So – and I present a case in point in the – the most difficult access constructed on the project was the Long Range Mountains. It was also one of the most cost-effective per kilometre basis of access done on the project because there was – it was discovered sometime after award to Valard that the reality is, you know, helicopter construction there is not going to be pragmatic.

So, there was sufficient time and effort spent well planning that access through the mountains – a lot of ground-truthing and so on. We placed the – and so that resulted in, I think, a very cost-competitive piece of access that was constructed through the mountains that not only enabled construction, but will be a key aspect of any emergency response plan that Nalcor has.

So, extending that onward, I think if we were starting out this again, you know, there are opportunities to do the access a bit more cost-effectively, and that really came back to the aspect of access plan.

Valard had a responsibility to develop the detailed access plans, and if you go into the correspondence between ourselves and Valard, you'll see that access plan is probably the most second prominently item that's referenced in all the letters.

MR. PEDDIGREW: But their –

MR. KEAN: And that's –

MR. PEDDIGREW: – responsibility to do the access plan, was that based on Hydro's view that the access would be by – it would not be by an access road?

MR. KEAN: Well – and I – basically, how – if you decide you want to build access down there, how do you do it as cost-effectively as possible.

MR. PEDDIGREW: But within the instructions they were given as to what kind of access would be necessary.

MR. KEAN: How do we optimize that access?

So, if you're going to start out this project again, if there was a desire for long-term operational access, it would've been probably engineered in – early in the project, and optimized throughout in the pre-construction phase more aggressively.

MR. PEDDIGREW: Okay.

And then – well, before I go to my last question, anything else you can think of looking back now that –?

MR. KEAN: Not that I can think of right here sitting.

MR. PEDDIGREW: A couple of times in your evidence, as well, you gave – or you made a statement about you would've liked to have had reserve where you had no access to reserve, and I guess you're meaning management reserve for when cost went over and when you were going to look for money for cost overruns.

I guess, just thinking back to the evidence you gave in Phase 1, it almost seems that the issue of not having access to reserve, I guess, is somewhat more concerning to you now, and maybe the question has been put to you in Phase 1. But I guess I'm just curious as to your desire to have more reserve. Was that communicated to anybody within Nalcor? I guess, any of your superiors.

MR. KEAN: Yes.

MR. PEDDIGREW: And to who?

MR. KEAN: So in Phase 1, I believe they gave evidence about the aspect of P75, initially. You know, we were starting with P75 and (inaudible) there was a move towards a P50. But, beyond that, there was always the view on the strategic risk exposure, whether these risks that we've identified will materialize or others.

Things, events occur. It's difficult for project practitioners, no matter how many cold eyes and third parties that you seek will be able to project everything, every scenario. It's not practical. They're – my understanding is that the general recognition, you know, amongst people that were certainly involved in the project, leading

the project, you know, would be that there is that understanding that projects – sometimes things can go not so well as intended. And that, you know, these are the things that we see today, but there could be other events –

MR. PEDDIGREW: Right.

MR. KEAN: – that may occur and that there needs to be coverage. Because once you start –

MR. PEDDIGREW: Right. Yeah.

MR. KEAN: – you have either two options, you can – I guess, three: You can either stop and recycle or move forward, I guess.

MR. PEDDIGREW: And obtain more money somehow.

So, I guess what I am wondering – just back to my question – is who within Nalcor did you express your desire or concerns about insufficient reserve, the desire to have more reserve? Was that to Mr. Harrington, Mr. Bennett, Mr. Martin?

MR. KEAN: Well, it's not so much the desire to have more reserve, but making sure people are aware of the need. These are the type – this is what we have today as identified as strategic risk. If these materialize, this is what it could be, but there could be other strategic risks out there.

MR. PEDDIGREW: Right, but I guess what I'm gathering is you felt that given the possibility that there could be cost overruns – and that's an inherent possibility in megaprojects – that ready access to more money and, I guess, identification of the fact that a certain amount of money should be set aside for these things, you would have liked it to be more recognized or more money to be set aside –

MR. KEAN: I just wish – my only desire was to ensure people were aware of that and to ensure that people appreciated that the P50 estimate contingency did not give consideration for any of these broader background issues should they materialize.

MR. PEDDIGREW: Okay.

So I guess my question is then: Did you – was it simply something that you identified and left it to your superiors to decide amongst themselves based on what you identified? Or did you make a case for there to be more management reserve?

MR. KEAN: There were plenty of discussions and presentations throughout time to make sure people were aware of the strategic risk –

MR. PEDDIGREW: Right, you presented them with the information. What I'm wondering is did you advocate for it?

MR. KEAN: I sent the last – my last prior-to-sanction interaction on this was I sent two emails on the 13th and 14th of August of 2012. And they're in exhibits where I do reaffirm with people that there are these external uncertainties that exist and we need to have – ensure there's coverage.

MR. PEDDIGREW: So, I guess, maybe I'll ask the question this way: Do you feel that – or did you feel at the time that there was an insufficient amount set aside for management? Or the fact that there was no management reserve and did you feel that that was – did you disagree with that and did you disagree with the amount that had been set aside based on strategic risk?

MR. KEAN: No – well, first of all, I never stated my awareness of whether there was a reserve available or not because I had no idea from a cost perspective. And, in fact, the project team should never be aware of what that is. And that was written in the 2008 version of the Governance Plan where management reserve is typically made aware by the board, the CEO and Investment Evaluation, of course, but – so that –

MR. PEDDIGREW: When you say the last two days that we had no reserve, how did this –

MR. KEAN: Schedule reserve. We were talking about schedule reserve.

MR. PEDDIGREW: Schedule reserve.

MR. KEAN: Yes.

MR. PEDDIGREW: Okay that's – I thought you were talking about it in relation to – but you were just referring to schedule.

MR. KEAN: That was – my recollection was the conversations around schedule we were talking about when we developed the, you know, the July 2017 – schedules for the July 2017 first power, there was no reserve in that.

MR. PEDDIGREW: Right.

Okay, well, let's talk about that just for a moment – and these are my last few questions. But did you communicate your concern about the absence of schedule reserve up the chain to Mr. Harrington, Mr. Bennett and Mr. Martin?

MR. KEAN: Yes.

MR. PEDDIGREW: And did you advocate for more schedule reserve?

MR. KEAN: The project team – it was aware that we – you know, Mr. Harrington was aware of the value of having schedule reserve. Mr. Martin was aware of what the schedule looked like and –

MR. PEDDIGREW: Mr. Kean, I get their value – I don't mean to cut you off, but I guess what I'm asking is did you or Mr. Harrington – did you say – did you go to anybody and say, look, we don't have enough reserve built in here for schedule. There's a good chance we're going to go over, we need to push it out. Or was it just simply identified in your presentations and you let your superiors decide for themselves?

MR. KEAN: So I believe I've given testimony to say that when the announcement was made it was the first I'd heard about December 2017 first power. The project team was working to a July 2017 first power. We presented a schedule risk analysis that showed there was risk to that.

How that – we weren't told to reset your schedule to be a mid-2018 timeline, so, in that regard, when the announcement came out for the July 2017 – or for the December 2017 first power, of course, we were – there was a little bit of breathing a sigh of relief. We got four or five months there right now that's been given back to the project team, so some recognition. So it talked about the power from Labrador in 2017, I think.

So – but, you know, up to that point in time, Commissioner, it was really about ensuring that the decisions-makers were aware of the quality of the schedule we had built, what it's – the work that had done that formed it, what the risks were to the schedule, and what the implications might be if those risks were to materialize and principally driven by weather calendars and weather – sorry, weather windows. So – and that's why we promoted to allow things like the start – or, sorry, the award of bulk excavation prior to sanction.

MR. PEDDIGREW: Okay.

I mean, what I'm hearing is that you didn't necessarily push for there to be more reserve in the schedule. You identified it as a risk and you gave information to Mr. Bennett and Mr. Martin that would allow them to – you know, if they – assuming they reviewed it – to consider it and make decisions, but you didn't necessarily advocate for there to be more schedule reserve.

MR. KEAN: I think there's probably enough presentations in, that's been given under evidence that talk about the schedule and the communications upward to, right through to Mr. Martin about the stressors on that schedule.

MR. PEDDIGREW: Right. And I guess –

MR. KEAN: And –

MR. PEDDIGREW: – that part of the concern is that there was so much in the way of documentation, it's that I think it's easy for things to get lost.

MR. KEAN: Pardon me?

MR. PEDDIGREW: With the amount of documentation, easy for things to get lost, an important detail, like something like that. If you felt strongly enough about it, I guess I'm wondering: Did you advocate for it? I mean, I'm hearing the answer is, no, but ...

MR. KEAN: I don't think that's a true characterization of that, Mr. Peddigrew. I've – I think it's fair to say that there was a lot of upward communication of not only what the date was, but these are – this is the critical path, these are the stressors that exist on that schedule.

So that was – Mr. Martin was aware of that, the sequence, things that needed to be done. And even to the point of putting together traffic lights to show the risk points in that schedule so to make sure people were aware.

So at the end of the day, yes, we would like, based upon this, having the ability to have more reserve, but at the end of the day, as a project team member, I wasn't a decision-maker on that.

MR. PEDDIGREW: Right.

MR. KEAN: So, you know, at – that would be Mr. – you know, the recommending of that would be a Mr., you know, Harrington, more so in the discussions.

MR. PEDDIGREW: Okay.

MR. KEAN: Remember, I'm two levels beneath Mr. Harrington.

MR. PEDDIGREW: No, no, I know. I know, yeah.

Okay, thanks very much.

THE COMMISSIONER: Yeah.

Innu Nation.

MS. BROWN: Good afternoon, Commissioner. Good afternoon, Mr. Kean.

My name is Julia Brown and I am counsel for Innu Nation. You may remember my colleague, Mr. Luk, who asked you some questions back in November.

MR. KEAN: Yes. Good afternoon.

MS. BROWN: Pardon me?

MR. KEAN: Good afternoon to you.

MS. BROWN: Oh, thank you.

I'm going to pick up on a line of questions that Mr. Luk started asking you about in November, but because they had to do with the procurement phase they got pushed to this phase of the Inquiry.

So, Mr. Kean, you have suggested previously that it was your understanding that Innu contractor bids were coming in higher than Nalcor had anticipated. Is that right?

MR. KEAN: Yes.

MS. BROWN: Okay.

And Mr. Luk read into the record, back in November, a portion of your interview from August and I'm just going to read to you the portion – it was a portion of this portion that was read in. So I'm just going to read you a little bit more than what Mr. Luk had read so that you have the context.

So what you said and this was in relation to the Innu contract bids coming in high. You said: I think the camp was the first package that came in and it was a huge differential from anything we ever saw. And it was a bit of sticker shock, to be quite honest with you, because we didn't think, you know, as a cost estimator, you know, I wasn't – that wasn't an area that we had been given that my – we could expect such premiums on that side. Whether they were real or just market gouging, I don't know. But, you know, there's a Labrador cost, but there was a cost there that we were seeing that was not like any of the budgetary quotes we had received. So that was much better – worse than what we were seeing.

Now, Mr. Kean, as I read that comment, what you're saying there is that you were wondering – you weren't sure, you were wondering whether these Innu First package bids were in keeping with true market value or whether their pricing was inflated. Is that what you were getting at there?

MR. KEAN: That was the thoughts that were going through our mind at that point in time in 2012, yes.

MS. BROWN: Okay.

And so, when you say real or just market gouging, by "real" are you saying real as in reflecting true market value?

MR. KEAN: True market cost, I guess. True market price – price, I would say, more so than cost, yes.

MS. BROWN: Okay.

And then when you say that you don't know. You don't know whether these bids were reflective of true market cost or whether they were, as you say, price gouging, whether they were coming in high. I take it that what you're saying there is that you didn't have and you don't have the information to be able to determine whether those contract bids were coming in fair or not. Is that right?

MR. KEAN: I didn't have the information as I wasn't evaluating the bids.

MS. BROWN: Right, okay.

MR. KEAN: That would be something Mr. Hussey would have greater clarity on.

MS. BROWN: Fair enough. Okay, and so –

MR. KEAN: It's a large differential with the estimate.

MS. BROWN: Right.

And so you personally, you wouldn't be able to tell us one way or the other whether those bids were reflective of market value or cost, or whether they were higher than they should be?

MR. KEAN: My only comment – I would not say with certainty – my only comment is that the camp cost that was carried in the estimate was based upon a fair bit of market data and some benchmarking that had also been done by SNC-Lavalin –

MS. BROWN: Right and –

MR. KEAN: – in that area.

MS. BROWN: Thank you, yes.

And Mr. Hussey has spoken to us about that so –

MR. KEAN: Okay.

MS. BROWN: – we have his information.

Did Nalcor ever undertake any audits or studies to find out whether the bids were reflective of fair market cost or whether they were higher than they ought to be?

MR. KEAN: I don't know.

MS. BROWN: Okay, so not to your knowledge?

MR. KEAN: Not to my knowledge.

MS. BROWN: Okay.

And to your knowledge, did Nalcor ever try to solicit other bids on contracts where you thought that the bids coming in were higher than they ought to be?

MR. KEAN: Not to my knowledge. Again, I would have to defer to Mr. Hussey.

MS. BROWN: Okay, thank you.

Those are my questions.

MR. KEAN: You're welcome.

THE COMMISSIONER: Thank you.

Astaldi Canada is not present.

Former Nalcor Board Members.

MS. G. BEST: No questions, Mr. Commissioner.

THE COMMISSIONER: Thank you.

Newfoundland Power Inc.

MR. KELLY: No questions (inaudible).

THE COMMISSIONER: Thank you.

Newfoundland and Labrador Building and Construction Trades, not present.

Dwight Ball, Siobhan Coady.

ANDRITZ Canada.

Grid Solutions ULC.

Barnard-Pennecon.

All right, Nalcor Energy.

MR. SIMMONS: Thank you, Commissioner.

Good afternoon, Mr. Kean. You've had a long couple days; I'm going to be as brief as I can – just a couple fairly specific points to ask you about.

First of all, concerning the Valard HVDC line contract, this kind of arises out of a question from Mr. Peddigrew a few minutes ago where he spoke of Valard having to proceed out of sequence while decisions were made about the foundations. Earlier in your evidence, you'd referred, I think, to the approach that Valard had put forward and had been adopted for how they would sequence doing foundation work. And you explained it before, I think, in connection with their performance of geotechnical work.

MR. KEAN: Yes.

MR. SIMMONS: I wonder if you can just go back and explain whether Valard had – their work sequence involved going sequentially from tower to tower to tower and doing the foundations or whether they had a different approach to it.

MR. KEAN: So on – the work sequence that was predicated or that underpinned the DC work was what was being undertaken on the AC line.

MR. SIMMONS: Mm-hmm.

MR. KEAN: So Valard's proposed means and methods to Nalcor during – Nalcor, SNC-Lavalin during the bidding phase for the AC transmission line was that they would proceed to go to each site with the understanding to install a grillage foundation. If they were to excavate and find rock foundation, they would move and a rock crew would come in and install the rock. If it was suitable for grillage, they would install a grillage. If it – not, they would just flag the site for further geo and move on. So in that regard, there would be skips because geo would have to be done and maybe an H-Pile installed.

So on the AC line, there was quite a few locations where skips were evident due to the

need to install an H-Pile foundation, as an example. So that same methodology is the methodology that was adopted on the DC line. So, of course, there were times when the same thing occurred, they would have to skip a location because it wasn't suitable for a rock or grillage. It was something alternate. Be it an H-Pile, which required some further geo confirmation of the conditions for the design – final design of the H-Pile itself.

MR. SIMMONS: Okay.

Can we look at Exhibit P-03189, please?

THE COMMISSIONER: 03189.

Okay, that will be tab 76, book 3.

MR. KEAN: Okay, thank you.

MR. SIMMONS: So, Mr. Kean, do you recognize what this is? Can you explain if this relates to what you were just explaining to me about the sequence for a tower foundation selection?

MR. KEAN: Yeah.

This is a document that Valard provided. This is part of the contract clarification phase for the HVAC line, the lines between Muskrat Falls and Churchill Falls, that Valard – where in this phase we're in negotiation for the AC contract. So they're responding to a number of contract clarifications, including the two that are shown on this page.

MR. SIMMONS: Mm-hmm.

MR. KEAN: Number five is very important because it relates to the foundation installation procedure. So it says – would you like me to read it?

MR. SIMMONS: Certainly. If – well, whatever you consider important there, please go ahead and –

MR. KEAN: Sure.

MR. SIMMONS: – read it and refer us to it, yeah.

MR. KEAN: So it says: “Per our discussions, Valard has revised its Foundation Installation Procedure and Geotechnical Program. Valard will be conducting a limited advance geotechnical investigation ... at sites that require deep foundations only. It is our intention to proceed with foundation installation based on all foundations being earth type Grillage Foundation.

“Providing that rock is not visible at the ground surface, the determination of the foundation type to be installed will occur concurrently with foundation excavation. As soon as the excavation equipment reaches the required installation depth, the underlying soils will be examined to confirm that an earth type Grillage Foundation is suitable. If the bearing capacity of the underlying soils is found to be suitable for an earth type Grillage Foundation, the excavation will be prepared to accept a Grillage Foundation and the foundation will be installed and backfilled at that time using foundation material transported with the Grillage Foundation Installation Crew.

“If rock is found on the ground surface or encountered during the excavation process, the Grillage Foundation Installation Crew will note its findings, prepare the site for a rock foundation and proceed to the next site.

“If the bearing capacity of the underlying soils at the required grillage foundations installation depth is found to be inadequate, the Grillage Foundation Installation Crew will flag that site for further geotechnical information, and proceed to the next site. A standard bore-hole investigation will be conducted to determine the final foundation requirements.”

MR. SIMMONS: So, is this a process that was put forward by Valard in order to avoid the necessity of doing comprehensive, advanced geotechnical work?

MR. KEAN: Yes. Based upon their means and methods, they didn’t see the value even though Nalcor was willing to pay them to do that, but –

MR. SIMMONS: Mm-hmm.

MR. KEAN: – during the negotiations, they said that’s an easy savings for you.

MR. SIMMONS: There’s a reference saying – you referred to there being foundation crews. Did Valard have different crews that were dedicated to just doing foundations and, in particular, to the different types of foundations?

MR. KEAN: Yes, they had grillage foundation installation crews –

MR. SIMMONS: Mm-hmm.

MR. KEAN: – they had earth-rock foundation crews; they had deep-pile foundation crews; they had what’s known as micropile foundation crews and, eventually, macropile installation crews, so really five different crews.

MR. SIMMONS: Hmm.

Now, I understand that Valard supplied or drew their crews that they used on these projects – the AC line and the DC line – from both their subsidiary company in Quebec and also from crews that they brought in from Alberta. Is that correct?

MR. KEAN: That is correct.

MR. SIMMONS: Yeah.

Were there any observations about the different productivities achieved by the crews from Quebec versus the crews that were brought in from Alberta? And did that have any impact on the progress of the work?

MR. KEAN: Nalcor’s observation during the execution phase is that the productivity and the capability of the Valard Quebec crews were – they were much more capable.

MR. SIMMONS: Mm-hmm.

MR. KEAN: Particularly, they could in – you know – the aspect of skipping – they could pretty much install a grillage anywhere. And I guess the aspect of – the biggest challenge with installing earth grillage is water management, and the Valard Quebec crews were quite proficient in water management, and they initially started in the Churchill Falls side of the line, and they did all the Northern Peninsula section, you know, segment 3, on the –

MR. SIMMONS: Mm-hmm.

MR. KEAN: – transmission line here on the Island.

MR. SIMMONS: Mm-hmm.

MR. KEAN: So, very proficient. And the challenge was transitioning – transmitting some of that learnings to the non-Quebec crews, you might say, who had familiar work in Quebec in very similar conditions as was seeing here in the province. So, that took some time, but eventually our – some of the initiatives that occurred to help get the learning curve to where it need to be –

MR. SIMMONS: Mm-hmm.

MR. KEAN: – and Valard were, of course, as time went by, increasingly productive.

MR. SIMMONS: So, is it correct, then, that one of the difficulties encountered – especially early on with Valard's performance of the work – was that their crews brought from Alberta were not as productive and as efficient in putting in foundations as their crews that had come from Quebec?

MR. KEAN: I think it's fair to say that the crews brought from Alberta weren't as experienced with dealing with –

MR. SIMMONS: Mm-hmm.

MR. KEAN: – the groundwater conditions –

MR. SIMMONS: Mm-hmm.

MR. KEAN: – that were prevalent and identified in the geotechnical baseline report, which says that water could be found within – anywhere within one metre of the surface. Anyone knows, Newfoundland, you can put a well pretty much anywhere.

MR. SIMMONS: Mmm.

MR. KEAN: So, the Quebec crews were much more proficient and used to that type condition, so groundwater management was a big challenge for Valard, and the means and methods that the Valard Quebec crews used was

seen to be much more proficient to be able to manage groundwater conditions.

MR. SIMMONS: Yep.

Mr. Peddigrew brought you through a number of things that the Valard witnesses had spoken of in their evidence when they were here. One other I wanted to ask you about is that they had complained that they said it took Nalcor a long time to process change orders, payment requests and so on. And do you have any comment on whether there was any difficulties in processing those sorts of claims from Valard?

MR. KEAN: Yes, some of them would go on protracted, and, oftentimes, it was a matter of documentation to support the entitlement.

So, for instance, it could be a change order related to, let's say, the trade-labour escalation –

MR. SIMMONS: Mm-hmm.

MR. KEAN: – which Valard was clearly entitled to underneath the contract, but it required them to provide payroll records. Likewise, fuel escalation: require and provide the details of the fuel consumed –

MR. SIMMONS: Mm-hmm.

MR. KEAN: – to be – to do the escalation calculations. It just seemed to take a long time, and as a result, of course, Valard wasn't – that wasn't out-of-pocket money for them, so the aspect of them getting their documentation together was a challenge. And it was also a big – very large challenge for them to, you know, to consolidate the quality records that underpinned the requirements for their pay items.

So, in order for Valard to get paid under the contract, they needed to demonstrate that the product – the foundation is solid, it meets the requirements, it can withstand a tower and all the quality checks are done. That was Nalcor's protection to, you know, the people of Newfoundland and Labrador. That was – at –

MR. SIMMONS: Mmm.

MR. KEAN: – the end of the day, you needed to have – it’s important about having a quality record –

MR. SIMMONS: Right.

MR. KEAN: – in place.

MR. SIMMONS: So, the contract that they were operating under, did it have terms in it that required Valard to submit this sort of supporting documentation before they had any contractual entitlement to be paid for either the regular work they were doing or for change order work?

MR. KEAN: Yes, it’s very clearly stated in the –

MR. SIMMONS: Right.

MR. KEAN: – the basis of payment or the provisions for contract change orders.

MR. SIMMONS: Right, and I gather that Valard was not always submitting, with their claims for payment, all the supporting material that was necessary to enable Nalcor to make the payments claimed.

MR. KEAN: That’s very true.

MR. SIMMONS: Can we look for a moment at P-03253, please? You were referred to this document in your direct examination. This is the Aconex transmittal. And –

THE COMMISSIONER: Tab –

MR. SIMMONS: – this point may have been fairly –

THE COMMISSIONER: Tab –

MR. SIMMONS: – clearly –

THE COMMISSIONER: – 97.

MR. SIMMONS: – clearly made.

THE COMMISSIONER: I’m just indicating tab 97.

MR. SIMMONS: Oh sorry, yeah.

THE COMMISSIONER: Book 4.

MR. KEAN: Yup, thank you.

MR. SIMMONS: Just scroll down a little bit, Madam Clerk, please? You can stop there.

So, if I understand correctly, Aconex is a document control system used by the project. All contractors have to subscribe to it. All formal communication and project documentation is transmitted through Aconex. And the Aconex system maintains a permanent record of all the documentation and all the transmittals. Is that basically correct?

MR. KEAN: Correct.

MR. SIMMONS: Correct.

And this exhibit is a record of a transmittal on December 24, 2012. The recipient is identified as Mr. Reynold Hokenson at MWH Global, and what I would like – if we scroll down a little, please, there are a number of documents identified here as being transmitted. And go to the top of the second page, please. Stop there.

The second document on this page is described as Decision Gate 3 Project Cost and Schedule Risk Analysis Report, and on the left there is a document number beginning LCP and going on. Was that the QRA document which is at Exhibit P-00130 which included the management reserve analysis prepared by Westney?

MR. KEAN: Yes, it is.

MR. SIMMONS: Okay. And so that document that was given to the MWH independent engineer included Westney’s work on management reserve, strategic risk and schedule risk.

MR. KEAN: Yes, it did. And just to further – in the winter period, as MWH were reviewing this, there were several communications and correspondence with Mr. Jim Loucks on the interpretation of that material.

MR. SIMMONS: Okay. And were you involved in those communications yourself?

MR. KEAN: Yes. Yes, I was.

MR. SIMMONS: With Mr. Loucks?

MR. KEAN: Yes.

MR. SIMMONS: And you were satisfied that he was aware of that material and he was communicating with you concerning it?

MR. KEAN: Well, his memos to me had those as the main references up top.

MR. SIMMONS: Mm-hmm. Okay, good.

Now, the only other thing I want to ask you about is also in relation to the QRA. And this is a point of clarification really because there's been quite a few questions asked about a QRA, being a quantitative risk analysis. We know that this one was done in 2012 and the next one was done in 2016. You've also talked about there being risk registers maintained on SNC's system, and I gather that the risk register work originally done by SNC and then maybe done by the integrated project team is for a different purpose and maintained differently than the QRAs done in 2012 and 2016. So, can you maybe describe for us what the two processes are and what purposes each one serves?

MR. KEAN: So the Project Risk Management Plan, which is an exhibit here –

MR. SIMMONS: It's an exhibit.

MR. KEAN: – Commissioner, talks about risk management in general and project, and at certain points we – there is a spinoff, an off-ramp, where you go and do a QRA exercise to understand the cost and schedule exposure for those open risks. But, beyond that, risk management is a day-in and day-out activity of managing against those risks, identifying new items, logging them, framing them, understanding their implication, trying to determine how best to manage them. So, that's an ongoing activity that's, you know, I've often said project management is a lot about – mostly equals risk management.

So, it's very, very core – at the core of project management is risk management. So, all the project management – all the project risks were being stewarded through the high-risk project management tool, and that was an ongoing thing

where there are ongoing risk workshops, reviews and so on through time –

MR. SIMMONS: Mm-hmm.

MR. KEAN: – to allow us to demonstrate to ourselves that we were effectively managing those and some – I think, in the monthly project progress report, there was always a dashboard showing what the status – the current status of risk.

MR. SIMMONS: So, for the purpose of executing the project – the process of continually identifying risks, planning mitigations or means to deal with the risks, and acting on that – did any of those processes require the performance of ongoing QRAs?

MR. KEAN: No. They're completely separated aspects.

MR. SIMMONS: Right. So, even though a QRA may not have been done between 2012 and 2016 that does not mean risks were not being identified and actively, actions taken to mitigate?

MR. KEAN: Of course.

MR. SIMMONS: That's correct.

MR. KEAN: The – two different things.

MR. SIMMONS: Okay. Good. Thank you very much. I don't have any other questions.

THE COMMISSIONER: Thank you. All right. Counsel for Mr. Kean.

MS. HUTCHINGS: So, for those who don't know me, my name is Deborah Hutchings.

First of all, I'd like to have the witness be shown Exhibit P-00862.

THE COMMISSIONER: 00862.

MS. HUTCHINGS: I think it's 00862.

THE COMMISSIONER: Okay. That's not gonna be in your book of documents, (inaudible).

MS. HUTCHINGS: That is not –

THE COMMISSIONER: Right. So, we'll bring it up on the screen.

MS. HUTCHINGS: Yeah.

This – I think I may have the number wrong. Hang on now. It would have been – I do – I just realized the number is incorrect. This would have been the document that would have been shown to Mr. Kean yesterday. It was an email or a correspondence from Mr. Leonard Knox –

THE COMMISSIONER: Okay.

MS. HUTCHINGS: – to Mr. Learmonth.

THE COMMISSIONER: Right.

While we try to find it, is there –

UNIDENTIFIED MALE SPEAKER: 03259.

MS. HUTCHINGS: 03259. Thanks.

THE COMMISSIONER: Okay. So that's at tab –

MS. HUTCHINGS: There we are. Thank you, Commissioner.

THE COMMISSIONER: – 103.

MS. HUTCHINGS: Okay. First of all, Mr. Kean, could you tell the Commissioner when the first time that you read this correspondence?

MR. KEAN: I read it yesterday when it showed up on the screen; it's the first time I had seen it.

MS. HUTCHINGS: Okay. So have you had a chance to have a look at it since that time?

MR. KEAN: Yes, I printed myself a copy this morning and tried to – tried to think about the dates there.

MS. HUTCHINGS: Okay. So in respect of – I just want you to have a look at the second paragraph, and Mr. Knox writes to Mr. Learmonth and says, "In my interview I told you that during the Execution of CH 006, Mass Excavation, and while we were still engaged

with tendering the Astaldi Contract, CH 007, I was called into the office of a senior Nalcor manager ... while I was at the Torbay office on other business."

Can you comment on that further?

MR. KEAN: Yes. I indicated yesterday that I met with Mr. Knox; I don't recall him specifically in for a meeting but he was in for a meeting as part of the contract negotiations for the Soldiers Pond switchyard civil works.

MS. HUTCHINGS: Right.

MR. KEAN: And I think they were being shortlisted at that point in time, and I had a chance to connect with him and as – at that point in time.

MS. HUTCHINGS: Okay.

MR. KEAN: So that would have been in the winter of 2014.

MS. HUTCHINGS: Okay.

I think the Exhibit that I was going to show Mr. Kean was in fact P – as well, Exhibit P-00862 and I think that's the timeline. Volume 1 of the five-volume set that was prepared by the project team.

MR. KEAN: Yes.

MS. HUTCHINGS: All right. So, can you expand a little bit further, if you look at that, and talk about your – how you come to understand that it was the time now, that you said in 2014, that you spoke with Mr. O'Connell – or, sorry, Mr. Knox.

MR. KEAN: Well, Mr. Knox and I had limited engagement ever before that, and probably limited since, but it was in the context of the negotiations of the switchyard at Soldiers Pond and – Mr. Knox and H. J. O'Connell were the major player in the bulk excavation contract –

MS. HUTCHINGS: Right.

MR. KEAN: – that had been awarded in 2012. And had neared completion in late 2013. In early 2014, Nalcor received a substantive claim from

H. J. O'Connell, as part of that IKC-ONE bid – or as part of that IKC-ONE consortium. So at about the same time, we had received Mr. Leonard Knox and company's bid for the Soldiers Pond switchyard and we were in – they were shortlisted.

So in this winter of 2014 and – him and I had a – I did raise a concern with him that I was – that – about him and O'Connell – you know, was this gonna be another repeat of the bulk excavation, where the work would get done and we would get some big claims?

MS. HUTCHINGS: Mm-hmm.

MR. KEAN: That's an important consideration in whether, you know, you wanna proceed, you know, in the evaluation of the package. So Mr. Knox seems to indicate in his email – or to Mr. Learmonth that the bidding for the CH0007 was under way. Which is not correct because, Astaldi were awarded the contract for CH0007 in August of 2013, so that's some six months later than when Mr. Knox and I were – or earlier than when Mr. Knox and I were having this conversation.

MS. HUTCHINGS: Okay.

MR. KEAN: And, very importantly I – what's shown in the timeline is that, shortly after Mr. Knox and I had this conversation, in April 2014, Mr. Knox's company was awarded that contract, for the Soldiers Pond switchyard. And they did execute it very well. And subsequent to that, they were awarded contracts associated with the breakwaters at L'Anse de Diablo [sp. L'Anse-au-Diable] and Dowden's Point and also for the synchronous condenser building.

MS. HUTCHINGS: Okay.

MR. KEAN: So, CH0007 had been closed so that – I cannot understand how that would've been a consideration. And subsequent to being awarded – subsequent to our conversation and being awarded the package for the Soldiers Pond switchyard, they were pre-qualified for the dams and received the RFP.

MS. HUTCHINGS: Okay.

So the – in the middle of second paragraph, he says: "He then indicated to me if I continued with our request for additional compensation for changes to our contract then that would have a negative impact on us, ie in terms of getting other work at site." So that doesn't follow with what you're saying.

MR. KEAN: That's correct.

MS. HUTCHINGS: Okay. All right.

And just for the record, what's the date of this correspondence from Mr. Knox?

MR. KEAN: May 2, 2019.

MS. HUTCHINGS: At what time was it sent?

MR. KEAN: 8:57 p.m.

MS. HUTCHINGS: Okay, thank you.

Now, you indicated, I think today, that there was some significant rework on tower foundations by Valard.

MR. KEAN: Yes, Mr. Peddigrew asked me whether Valard – there was some foundations that we didn't agree with Valard's recommendation on, and I provided some clarity around that. But it was true that Valard did install foundations and had to remove them and reinstall them, the same foundations, because of what we consider to be poor workmanship. And that occurred at a number of locations in 2015.

MS. HUTCHINGS: Okay.

Can I have the witness be shown P-03255, please?

THE COMMISSIONER: That's going to be tab 99 in book 4.

MS. HUTCHINGS: Okay.

You have a look at that document. Does this relate to that issue?

MR. KEAN: Yes, this is one of the structures that Valard had to remove and reinstall. This is structure S1-70, so, basically, structure number 70 at Muskrat Falls – leading out of Muskrat

Falls. And this is a sample of our – this is a report that was done by our lead geotechnical engineer, Nazmi Boran, who's an SNC-Lavalin individual.

MS. HUTCHINGS: Right.

MR. KEAN: And him and a team of individuals did a review of a number of these failed foundations, as we call them.

MS. HUTCHINGS: Okay.

And how – what was happening with those foundations that they were failing?

MR. KEAN: They were settling. And as a result, they were four foundations for a dead-end structure and their differential settlement amongst them – across them was quite a bit.

MS. HUTCHINGS: Okay.

MR. KEAN: And as a result, you – Valard couldn't install the tower on top of the foundation and their only option was to remove the foundation and reinstall it in a proper manner.

MS. HUTCHINGS: Okay. And what did Nalcor do about this?

MR. KEAN: So Nalcor worked – participated in the – you know, witnessed the removal and reinstallation. We conducted a – you know, consolidated our own forensic assessment of what went wrong and what didn't. We shared that with Valard as terms of talking about work methods of how you can better protect the base during the excavation, not leaving it unprotected.

We also did some geotechnical boreholes there to verify that there was no underlying subsurface concerns with – that could lead to settlement. And following the installation we conducted – our own survey teams conduct a survey of all these structures and foundations over a two-year period to verify that there would be no further settlement.

So, I guess, Valard had a problem. We tried – you know, they recognized the need to correct it, but it was a fairly significant situation. Our

objective was to share and make them aware of the challenges that we saw and so they would learn from that in future foundation installations.

MS. HUTCHINGS: Okay.

So lessons learned, I guess.

MR. KEAN: Yes. I think on page 5, to give the Commissioner an idea of, you know, the size of some of these excavations, this is in Labrador. So in photo 7 you can see the removal of one of four foundations for a big dead-end tower by two excavators. It's the big structures. And some of the work that had to be done to ensure that it was – it didn't settle in the future.

MS. HUTCHINGS: Okay.

MR. KEAN: So this occurred at a number of structures and Nalcor undertook reviews, as I said, comprehensive assessments in the event as well, as Valard came back against Nalcor.

MS. HUTCHINGS: Okay.

Now, I want to look at some – I guess, some information that you provided prior to your departure.

MR. KEAN: Yes.

MS. HUTCHINGS: If we can have a look at P-03261, please – Exhibit P-03261.

THE COMMISSIONER: That'll be at tab 106.

MS. HUTCHINGS: So is this a presentation that you would've provided to the GNL Oversight Committee team?

MR. KEAN: Yes, it is, in January 29, 2016, so some months before bifurcation occurs.

MS. HUTCHINGS: Okay, all right.

And so this would've been how many months before bifurcation?

MR. KEAN: This would have been about six months.

MS. HUTCHINGS: Okay.

MR. KEAN: And you can see noted in red, I've made notes there on the slide that indicate when the meeting occurred.

MS. HUTCHINGS: Okay, on the 29th.

MR. KEAN: 29th at –

MS. HUTCHINGS: All right.

MR. KEAN: And the time, location.

MS. HUTCHINGS: Now, did you make the oversight team aware of the challenges and the risks that was associated with Valard at that time?

MR. KEAN: Yes.

MS. HUTCHINGS: In the HVDC –

MR. KEAN: Yes, I did.

MS. HUTCHINGS: – contract, yes.

MR. KEAN: We were actually getting a lot of questions from the Oversight Committee about concern on the transmission. They were aware that things – from seeing the progress reports, things were behind.

MS. HUTCHINGS: Yeah.

MR. KEAN: They were concerned they had another Astaldi situation on their hands. People were super sensitive at that point in time, as rightly so. So the intent of this presentation was to make sure they're aware of who Valard was as a company, what – where we were as a project, some of the challenges and some of the risks going forward that we saw. So that was the objective, and so I think –

MS. HUTCHINGS: Could you have a look at slide 16, please?

Okay, can you read that slide and just tell us any significance about this – or even just talk about it generally?

MR. KEAN: So this is an overview, one-page overview of where the DC contract was as of January 2016 – or the end of December 2016. So as you can see in Labrador, plan was 42.5, we

were at 40 per cent. On the Island, we're not too far behind: 11.4, 7.6. We were targeting completion in Labrador at the end of 2016. And plan for the entire line by the 1st of July, 2017, which was Valard's contract date.

MS. HUTCHINGS: Okay.

MR. KEAN: But we were – what – it's under threat, and we're expecting Valard to give us a new plan to show us how they'd do it.

I advised them that, you know, right now there could be a potential claim for geotechnical conditions because conditions were different. Valard had so many settled foundations; they're going to come back to us. And there is some noise around it regarding whose fault the access was there. There – I think we talked about that yesterday in terms of Mr. Williams making statements around the access conditions. However, I did – at this point – this is one year before I left, context-wise –

MS. HUTCHINGS: Yeah.

MR. KEAN: – I did say our position is very strong. And I did outline what I saw the key issues were with Valard.

I said that Valard must demonstrate a strong recovery plan or missing the 1st of July window – 2017 window – would trigger significant LDs. Project as cost or – “Project has cost grossly exceeded plan” You know, many factors. “Geotechnical conditions south of Muskrat Falls has hampered foundation progress.” But there's a learning curve. And the key risk I saw then was – I'd particularly like to bring your attention to number 4 – was: “Valard's ability to successfully position a geotechnical claim.”

So this is why we were doing certain things proactively, engaging Berkeley Research Group and so on.

MS. HUTCHINGS: Right.

MR. KEAN: So this is a year before I left.

MS. HUTCHINGS: Right.

MR. KEAN: Awareness.

MS. HUTCHINGS: Okay.

And did you get the sense that the – that there was an appreciation from the Oversight Committee of these – a risk of commercial claims?

MR. KEAN: Yes, I did. It was certainly a discussion item.

MS. HUTCHINGS: Okay. All right.

Could I have the witness be shown P-03262, please?

THE COMMISSIONER: All right, that's tab 107.

MS. HUTCHINGS: So this is a slide deck that's called Valard Performance Discussion, dated July 14, 2016.

Any – what can you tell us about this particular slide deck?

MR. KEAN: I was informed in a – in about few days before this that – well, roll back the clocks. Mr. Marshall arrived about for – in early May.

MS. HUTCHINGS: Right.

MR. KEAN: We (inaudible) one over deck – overview presentation on the project. This was the first time we would get a chance to talk to him about the transmission line, specifically. I was informed that Quanta Valard were coming to town to meet with Mr. Marshall, to talk about the project, and they had concerns, of course.

You know, they came and so I – this deck was prepared by myself and presented to Mr. Marshall and Mr. MacIsaac by myself and Lance Clarke, who was the commercial manager.

MS. HUTCHINGS: Mm-hmm.

MR. KEAN: Mr. Harrington – of course, bifurcation had been under way at this point, so Mr. Harrington had no involvement in this part of the project, but Mr. Clarke had obligations from a commercial management ...

MS. HUTCHINGS: Right.

MR. KEAN: So this was a presentation I prepared to give Mr. Marshall and Mr. MacIsaac a clear understanding of what the – where things were and where they weren't, and proposed to them some way forward with Valard.

MS. HUTCHINGS: Right.

Can you have a look at the – slide number 4, please?

MR. KEAN: Yes.

MS. HUTCHINGS: And I think that's the purpose of the slide ...

MR. KEAN: Yes, I wanted to give –

MS. HUTCHINGS: Okay.

MR. KEAN: – them as much background and relevant insight into where we were with them –

MS. HUTCHINGS: Right.

MR. KEAN: – 'cause I'm sure they were gonna get a different view when they met with Valard, Quanta –

MS. HUTCHINGS: Okay.

MR. KEAN: – and, you know, propose a way forward.

MS. HUTCHINGS: Okay.

So what effect did the rework have on Valard?

MR. KEAN: I think that I – that was a very important – it was really hampering their forward progress.

MS. HUTCHINGS: Okay.

MR. KEAN: And I think that was a key thing I wanted to articulate to Mr. MacIsaac and Mr. Marshall is that, if we can avoid rework, certainly – be it concrete deficiencies or settled foundations – do it once, do it right.

MS. HUTCHINGS: Right. Yeah.

MR. KEAN: That'll help improve progress.

MS. HUTCHINGS: So what pages are you looking at there, 15 to 18?

MR. KEAN: So slide 15 gives an overview of some of the challenges that existed. There was, at this point in time, I think about, oh, several hundred open non-conformances on concrete on the AC line –

MS. HUTCHINGS: Right.

MR. KEAN: – so they're having to remove foundations, bust them out. So that was taking away from rock foundation crews that should be on the DC line, doing work and progressing.

MS. HUTCHINGS: Mm-hmm.

MR. KEAN: Similarly on slide 16, I made them aware of some of the settlement issues that they were having, and removal and re-installation that's – it's costing Valard time and money.

MS. HUTCHINGS: Right.

MR. KEAN: We don't need that. Plus, it's not good for us. And I think on slide 18, I gave Mr. Marshall and Mr. MacIsaac clarity as to some of the concerns that we had on concrete. And, I might add, those were never – at the point of my departure, were still an open issue.

MS. HUTCHINGS: Okay.

MR. KEAN: And, you know, to draw your attention to the second pie chart on the bottom where it says: "Poor air entrainment or no data" available for 57 per cent, or 461 concrete foundations on the AC line.

MS. HUTCHINGS: So, when you say no data, is that data coming from Valard?

MR. KEAN: Yes. No data available from Valard –

MS. HUTCHINGS: Okay.

MR. KEAN: – either the data that showed that it was entrainment – air entrainment wasn't acceptable or there was no data (inaudible) us even to look at.

MS. HUTCHINGS: Okay.

MR. KEAN: So, in that type of instance you need to start coring – small coring to understand what the actual concrete air entrainment conditions are.

MS. HUTCHINGS: Okay.

All right –

MR. KEAN: One other item –

MS. HUTCHINGS: Sure.

MR. KEAN: – on that, if you could, on slide 31 – for the Commissioner's benefit. So, now we've got additional leadership in place. You know, we got – hopefully, that's one of the benefit of the bifurcation. Of course, Mr. Gilbert Bennett and, certainly, focused a lot on it with Mr. Harrington on the Astaldi situation, some of the implications there. Mr. MacIsaac is here – from a perspective of having, let's say, a new focus on the transmission.

So, I – my message to him was we've reached a critical point concerning the path for Valard. We must reset and move forward. And I wanted to leave – you know, people were talking about maybe we need to bring in another contractor, and I wanted to make it be clear that I believe that remaining with Quanta, Valard is the best solution or the optimal solution for the project.

So, this is important in the context of our discussion yesterday, where this is given on the 16th of July, 2016.

MS. HUTCHINGS: Okay.

MR. KEAN: We had a lot of discussion yesterday on a letter that I had issued on the 22nd of –

MS. HUTCHINGS: Right.

MR. KEAN: – 22nd of July, 2016, where Mr. MacIsaac reprimanded me. So, here I am proposing, the week before, that we reset and move forward.

So, I'm presenting this. So, I had a willingness. I just needed some senior management's support therein and engagement to help move this forward. So, I just thought I got –

MS. HUTCHINGS: Absolutely.

MR. KEAN: – I got threw under the bus by Mr. MacIsaac on the 22nd of July – to be honest.

MS. HUTCHINGS: Okay.

All right. Let's have a look at P-03256. Okay. So, this is a document, a Nalcor document – Minutes of Meeting.

THE COMMISSIONER: Tab 100.

MR. KEAN: Thank you.

MS. HUTCHINGS: Now, I think you mentioned before about joint planning workshops with Valard, and I see that there are people that – who are present there. And if you can just – I don't want you to repeat everything that you said, I think, yesterday or today, but if you can just – in talking about this particular document, if you can just –

MR. KEAN: Yeah.

MS. HUTCHINGS: – summarize the –

MR. KEAN: I think I heard from the Valard testimony – when I read it – about the aspect of collaboration and decision-making, and this is a meeting regarding access in all the planning for construction that needs to occur going forward. This is a joint meeting called by Nalcor.

And I think if you scroll down to number 2.0 there, it says the purpose of this workshop – or the “LCMC requested this workshop in order to ascertain Valard's current outlook for completion of the balance of scope on the Island, as well as ... discuss critical risk areas requiring both collective focus and alignment.”

So, this is a workshop, one of many that was hosted by Nalcor throughout the execution of the project. This workshop wasn't attended by myself. It's attended by the working people, the people that were operationally involved in this project.

It just – you know, there's pages of discussions and actions for both parties coming out of this – and dates.

MS. HUTCHINGS: Okay.

MR. KEAN: But it's intended that – you know, it's just an example of engagement, interaction, collaboration.

MS. HUTCHINGS: So you didn't attend this particular workshop. What about G. Cahill or K. Williams or R. Taylor, which is the – under the – if you could go back to page 1 of this, Madam Clerk.

MR. KEAN: No.

So Jason – Mr. Cahill is commercial support for Nalcor.

MS. HUTCHINGS: Right.

MR. KEAN: He didn't attend.

K. Williams is Kelly Williams, who –

MS. HUTCHINGS: Right.

MR. KEAN: – was the Valard project manager. He didn't attend.

MS. HUTCHINGS: Okay.

MR. KEAN: And nor did – so –

MS. HUTCHINGS: And Rosann Taylor, I think is the other one there that –

MR. KEAN: She's contracts administrator.

MS. HUTCHINGS: Right.

So, there's – those are the people that really didn't attend, but they would have circulation, I guess –

MR. KEAN: Yes.

MS. HUTCHINGS: – of the minutes.

MR. KEAN: Yes. That's correct.

MS. HUTCHINGS: Okay.

Let's have a look at the Valard people there, just very briefly. Who is Dave Torgesen?

MR. KEAN: Dave Torgesen was the overall construction manager, who joined the DC from the AC and who I really attribute to bringing a lot of the learnings and strength to the DC team. And that's important because the DC project manager, Mr. Williams, had no – had – was not involved in the AC line. He was not involved in the contract negotiation.

MS. HUTCHINGS: Right.

MR. KEAN: Mr. Torgesen was and he was the senior CM and really brought the strength to the team, I think, to allow Valard to accelerate on the island.

MS. HUTCHINGS: Okay.

And what about the next person, Mr. Joe –

MR. KEAN: Pandiak.

MS. HUTCHINGS: Pandiak, (inaudible) –

MR. KEAN: He was Valard's project director, who Mr. Kelly Williams reported to. He's since deceased.

MS. HUTCHINGS: Okay.

Alex – the last one down there – Budzinski.

MR. KEAN: Alex Budzinski was the foundation manager –

MS. HUTCHINGS: Okay.

MR. KEAN: – who is also the brother of the president and CEO of Valard.

MS. HUTCHINGS: Okay. All right.

And so when you were dealing with Valard, who was – who would you communicate with?

MR. KEAN: I would normally communicate with Mr. Joe Pandiak –

MS. HUTCHINGS: Okay.

MR. KEAN: – at this point in time because Mr. Pandiak had came in as the project director. Valard had three project directors during the

course of the DC package, first it was Mr. Adam Budzinski, who was also the president –

MS. HUTCHINGS: Mm-hmm.

MR. KEAN: – and CEO; it was then a Mr. Mike Power, and then eventually Mr. Joe Pandiak.

MS. HUTCHINGS: Okay. All right.

Now, I think you already covered the purpose of the meeting.

MR. KEAN: Yes.

MS. HUTCHINGS: Okay.

Okay.

How often would these meetings occur?

MR. KEAN: Well, there were weekly planning – weekly meetings and actually a daily call. Their – these big workshops would be as required, but there would be multiple of them each year.

MS. HUTCHINGS: Okay. All right.

Just a couple of more. If we can have the witness be shown P-03263, please.

MR. KEAN: One-oh-eight, right?

THE COMMISSIONER: That's at tab 108.

MS. HUTCHINGS: So if you can tell the Commissioner what the – what's the nature of this presentation.

MR. KEAN: Is this the 108?

MS. HUTCHINGS: 03263. Oh no, 63. Sorry about that.

THE COMMISSIONER: 03263, tab 108.

MS. HUTCHINGS: So, what is the – what's the nature of this particular presentation?

MR. KEAN: Again –

MS. HUTCHINGS: And note the date, too, Mr. Kean.

MR. KEAN: This is another update to the – this time to both the independent engineer and the Muskrat Falls Oversight Committee that I think, at this point in time, was being chaired by Mr. Coffey.

This was given in November of 2016, the 29th. It was a meeting that occurred at our project office on Torbay Road. And again, these would have been provided for many components: Muskrat Falls, the DC specialities, the Strait of Belle Isle. But this one is specifically a presentation I gave on the transmission line.

MS. HUTCHINGS: Okay.

MR. KEAN: So giving – so we had given one in January; there's probably one intermediately in the mid-summer, but this one towards the year-end again. So, we almost got one year past since the big one in January.

MS. HUTCHINGS: So, the independent engineer is present in that meeting?

MR. KEAN: That was quite common –

MS. HUTCHINGS: Okay.

MR. KEAN: – that they would be in meetings together.

MS. HUTCHINGS: And who would that be?

MR. KEAN: Oh, it would be Mr. Argirov. There would be a collection of maybe four or five representatives from the engineer. Three, four, five representatives –

MS. HUTCHINGS: Okay.

MR. KEAN: – likewise, from the government Oversight Committee.

MS. HUTCHINGS: Okay. And – so, what was the messages that you were trying to convey to the audience at that time?

MR. KEAN: I think slide 4 is the –

MS. HUTCHINGS: Okay. Turn to slide 4 then.

MR. KEAN: – key messages that I was trying to – I was trying to give people a chance to, you know, to take a little – and breathe, I guess. We had a lot of concerns for progress and maybe another Astaldi on their hands in January of 2016.

MS. HUTCHINGS: Right.

MR. KEAN: And I gave them assurance that that wouldn't be the case and Valard did have the capability, but key messages is that: "We have made significant progress aligning with Valard on a plan to completion."

We've had – "Strong progress has been made on key work scopes since late summer; We have and will continue to implement measures to further de-risk the plan." And the "HVdc Conductor installation has recommenced; on target for November 2017 completion."

So at this point in time, I was saying that we should be finished by November 2017, and as you know, Valard finished – this is a year earlier. Valard did finish in November of 2017.

MS. HUTCHINGS: Right. Okay.

MR. KEAN: And the "Focus remains on the key enablers of the Plan."

So, once Valard got rock and rolling; we got a few bugs ironed out; we got the right-of-way straightened out; we got the right-of-way and access done, the predictability became much more greater –

MS. HUTCHINGS: Mm-hmm.

MR. KEAN: – on the Island.

MS. HUTCHINGS: Okay.

If you have a look at slide 11.

Is there anything there you would like to mention?

MR. KEAN: Sure. I guess, the key thing that has been the most predictive or leading indicator of Valard's performance has been foundation installation. If they get the foundation installed,

they get out of the ground, things get much easier.

So, the aspect here was that: “Foundation installation has been the leading indicator of Valard’s performance.” And “Affirmative actions have resulted in a positive trend.”

Those actions will occur over the proceeding twelve months. It’s a long road.

MS. HUTCHINGS: Right.

MR. KEAN: So, that included: “Enhanced joint ground-truthing focused on constructability,” whether we could move the tower. So, getting out way ahead of construction.

MS. HUTCHINGS: Yeah.

MR. KEAN: Advanced test pitting. So, Nalcor funded Valard to do further advanced test putting ’cause they were concerned about material availability, and they were concerned about the overall progress of the line.

Doing a lot of borehole work. We probably had about 400 geotechnical boreholes done on the line, at this point, to deal with all of those questionable sites that Valard said that wasn’t suitable for earth grillage or rock, and we accelerated and optimized the foundation selection program. So, a lot of collaboration by the teams. And I think that document, that foundation selection program, went through 10 or 12 revisions.

So for me this is – it’s a good indicator on the trend there. We’re starting to see on the graphs to the right, the top – there’s a green line showing the plan, and, Commissioner, there is a blue line starting to go above that plan. So we’re starting to not only do – we’re starting to do better in our plan, which is giving me confidence in the completion in that end of ’17 period quite easily.

MS. HUTCHINGS: Okay.

All right, do you want to just turn to slide – first of all, slide 36 and then, after, slide 37. So, have a look at slide 36. What is this telling us?

MR. KEAN: Well, we talked a lot about risk and were we managing risk during the execution and as I said it’s not just about Monte Carlo simulation, it’s about risk. This is a summary of the four big risks that we saw would – under the transmission line. These were under management and I’m just given a current status update of those to the independent engineer and the government Oversight Committee. And I am saying that there – the four of them are “Potential delay to construction schedule due to proud strand on ...” a conductor. Number two was “Valard’s Performance – Overall Completion Delay (Slow start-up, inadequate resourcing, leadership and competencies).” Three was “Potential Commercial Claims from Valard,” which we had received none, but I was making them aware that –

MS. HUTCHINGS: (Inaudible.)

MR. KEAN: – we have that risk, we are doing work to be able to assess those should it be received. And “Segment 3 Winter Zone Execution – Single Season Constraint.” So that was an area for the first 94 structures leading out of Shoal Cove on the Northern Peninsula where there is no access only winter –

MS. HUTCHINGS: Right.

MR. KEAN: – we’re going into the final winter –

MS. HUTCHINGS: Mm-hmm.

MR. KEAN: – we have done some work, it’s cleared, we know the foundations that need to go in, but we need to make sure we – Valard hits that section hard, and they did. In that winter of ’17, they took care of it. They got it done.

MS. HUTCHINGS: All right. So, if we look at then the next slide, which is 37.

MR. KEAN: So, this is a dashboard showing the cost and where we think things are at this point and time. And if I can draw your attention to middle there, it says CT0327-001: HVDC Line Construction contract. So that is the Valard contract. And at this point in time, the value of it is being forecast at about \$887 million.

MS. HUTCHINGS: Okay.

MR. KEAN: It eventually was closed, I think, at \$1.78 billion. And that – you know, the balance is largely the settlement with –

MS. HUTCHINGS: Right.

MR. KEAN: – some outstanding change orders that are being processed in late fall of 2016.

MS. HUTCHINGS: Okay.

MR. KEAN: So good visibility on where we were. That's the important – I was trying to make sure people were aware. This is the same information I was providing to Mr. MacIsaac at this point in time.

MS. HUTCHINGS: Okay.

MR. KEAN: Of course, he was getting it every week –

MS. HUTCHINGS: Right.

MR. KEAN: – (inaudible) week, depending on the case.

MS. HUTCHINGS: But he was involved at this time. He was present at this time.

MR. KEAN: Yes, he – I'm not sure he attended this session, of course, but he would have had a copy of this, and he had a detailed dashboard every week or by – every second week. And, of course, this is in November, and Mr. MacIsaac had been on the watch since June.

MS. HUTCHINGS: Okay.

Okay, so the next document is P-03264, please.

THE COMMISSIONER: Tab 109.

MR. KEAN: One-oh-nine, okay.

MS. HUTCHINGS: So this is the "Overland TL" – transmission line – "2017 Look-ahead," dated December 7, 2016. Who prepared this particular deck?

MR. KEAN: I prepared this deck.

MS. HUTCHINGS: Okay, yep.

MR. KEAN: And I prepared it to meet with Mr. Greg Fleming, who was the incoming project director for power supply, who I would then report to.

MS. HUTCHINGS: Right.

MR. KEAN: So Mr. Fleming and I had worked together, of course, for a number of years but now he was moving into a new role. I wished to give him an overview of what – where we were.

MS. HUTCHINGS: So had he been – prior to this, had he been involved in the transmission line –

MR. KEAN: No –

MS. HUTCHINGS: – at all?

MR. KEAN: – he was the manager for the Strait of Belle Isle crossing.

MS. HUTCHINGS: Okay. All right.

So who else was audience to this particular – anybody else?

MR. KEAN: No, this was just him and I.

MS. HUTCHINGS: Okay. All right.

And so you might want to – can you tell me about your team, at this time, and its effectiveness.

MR. KEAN: Well, I'm just – the objective here is to give Mr. Fleming – Greg confidence that where we are –

MS. HUTCHINGS: Okay.

MR. KEAN: – that we had challenges, we got a lot done in 2016. So the first slide – slide 3, if I could –

MS. HUTCHINGS: Okay.

MR. KEAN: – shows that, you know, we left 2015 with overall construction complete at 38 per cent. We're leaving 2016 with that now at 74 per cent.

MS. HUTCHINGS: Okay.

MR. KEAN: You know, that's fundamentally – so we've done a lot. We've achieved a lot.

And I guess I – Mr. Fleming was coming in new to an organization, so I wanted him to have clarity as to how we work as a team. So I was giving him an overview of the project, how the organization is structured. So I – if you could go to slide 7, please. I just – Commissioner, I just have a few – couple slides here that was I giving to Mr. Fleming, trying to convey to him that this is a well-organized team. We have levels of – “and competency to implement strategies and tactics contained in the ... Management Plans.” We have an area-based approach with area managers. And we have a lot of field teams.

And – so if you could go to slide 8, please. Eighty per cent of the team was in the field – decentralized decision-making with some comeback to home office for major commercial issues, of course. And – for engineering support – and we had continuity of the engineering from the design through to follow on and construction. We had the same engineers who were involved in the initial design that supported us right through to the end. And they also did the design for the line between Bay d'Espoir and Western Avalon in their spare time.

Now, the engineering team is engaged in daily construction operations. The SNC engineer of record, they are very much involved in the day-to-day activities. We had – and they're in the field when needed. They couldn't be everywhere because we have too many open work fronts, so they have to be in the office, and (inaudible) move around, but most of the field, 80 per cent of positions, are in the field.

So, I wanted to make sure that he was aware of how we're structured because it was different than some of the other components.

MS. HUTCHINGS: Right. Okay.

MR. KEAN: And, slide 9, if you could, was just giving him – and I provided him with copies of the four main documents that were used to give guidance to that team.

MS. HUTCHINGS: All right.

MR. KEAN: And that's the construction management plan for the transmission team, the quality surveillance plan, the inspector's handbook and the completions plan. So, these were – these plans gave him guidance that the team members used and referenced.

MS. HUTCHINGS: Okay.

MR. KEAN: So, organized staff with competent people – I was very fortunate to have a very competent and experienced team who were doing their job.

MS. HUTCHINGS: Okay. The last document, P-03184 – okay.

THE COMMISSIONER: Tab 72, book three.

MR. KEAN: Seventy-one, I think.

THE COMMISSIONER: Yes, tab 71.

MS. HUTCHINGS: So, am I correct? This is just before you left the project, correct?

MR. KEAN: This is just before the Christmas break. Yes, this was the last formal status update I gave.

MS. HUTCHINGS: So, there's a forecast cost there, I guess. Do you want to just speak to it?

MR. KEAN: Yeah –

MS. HUTCHINGS: Yeah.

MR. KEAN: – this is the dashboard I would be giving to Mr. – now, Mr. Fleming, of course –

MS. HUTCHINGS: Yeah.

MR. KEAN: – who is the new project director, and prior to that Mr. MacIsaac, as the, you know, executive vice-president. So, I was just giving – this is a dashboard that shows where we are. So, I highlighted that we're currently 57 foundations ahead of plan. So, I indicated earlier that foundation installation was a leading indicator. So, things were in good shape. The Long Range access had joined on the 10th of December – sorry, Commissioner.

THE COMMISSIONER: That's okay.

MR. KEAN: And, actually, I had to pleasure of being the first person to drive through that.

MS. HUTCHINGS: Okay.

MR. KEAN: Myself and Mr. Ron Power – through that – just so to be there to make sure we understood where things were and the suitability for Valard to come beyond doing their work.

And, there was a lot of priority areas, but I was giving Mr. Fleming clarity on where we were. So if you can go to slide 3, please? This is a simplistic – this is an overall S-curve, and I draw to your attention the 70.6 per cent. That's where we were at this point in time, on the overall DC construction, AC construction.

And I think, you know, as the year ended up, I think it was about 75 per cent, when everything got to come in, all of the final –

MS. HUTCHINGS: Mmm.

MR. KEAN: – progress.

MS. HUTCHINGS: Okay.

MR. KEAN: And – down bottom, it says: We're currently – our actual progress is 70.6 versus the plan, our AFE Rev 3, which was that June (inaudible) when Mr. Marshall arrived. June of 2016, we said we'd only be at 70.1, but we were doing better than plan. And I'm forecasting completion that we could be there in December of 2017. So would bumping around was in November, December of 2017, Valard delivered in November of '17.

So, there's no – you know, at this point in time, again, there was no claim – had not been received, no settlement of any claim, of course.

MS. HUTCHINGS: Mmm.

MR. KEAN: This is where we're still forecasting things.

MS. HUTCHINGS: Okay.

So that was slide 3. Can I have you look at slide 5, please?

MR. KEAN: Yes. Slide 5, again, is the cost update of where we were. In the middle, it says: CT0327-001 HVDC line construction was currently forecasted, you know, at \$898 million.

The – right beneath that, the right-of-way access was forecasted at \$488 million. I think it turned it out – the right-of-way ended up to be a little less than that. But however, I was raising, down below, again, these key cost trends that exist there, that some things regarding the geotechnical and some – the quantity exposure, we're installing more piles than we were grillage, for instance –

MS. HUTCHINGS: Mm-hmm.

MR. KEAN: – which is the fourth down the bottom.

There it says: "Foundation Program Quantity Exposure," so that had to be – we're monitoring that, tracking that. Likewise for maintenance, access maintenance and snow clearing. We had very good cost-engineering support here, tracking things day by day. We knew where we were.

I – for the road construction, I got a daily report that showed me how much the day before the cost per kilometre of road was.

MS. HUTCHINGS: And this is information coming from –

MR. KEAN: Our team –

MS. HUTCHINGS: – your team.

MR. KEAN: – the Nalcor team –

MS. HUTCHINGS: Yeah.

MR. KEAN: – site teams.

MS. HUTCHINGS: Okay.

So, how did you see the major risks at this point in time? Was it either cost or schedule?

MR. KEAN: I felt pretty confident in the schedule at this point in time because the positive momentum we had seen. And also, we're on the Island. At this point in time, all of

the towers had been erected in Labrador, the conductor-stringing situation that we had with having to remove conductor that was – we had a solution for that. I had all – we had all the conductor in hand. The restringing, that started for about three months. The new conductor was being installed without any problems. We had three stringing crews from Valard that showed the ability to complete the line in the end of the '17 period.

My main concern, again, was regarding – at the end of the day it wasn't achieving progress 'cause on the Island conditions were more favourable –

MS. HUTCHINGS: Right.

MR. KEAN: – and the access was done. So there was no issue about access ever getting in the way of line construction. My greatest concern was, I guess, shown on slide 8 –

MS. HUTCHINGS: Yeah.

MR. KEAN: – you know, I had – there's four risks there, three of them have an exposure level red. Really, the second one from the top should probably be an amber as –

MS. HUTCHINGS: Okay.

MR. KEAN: – that – you know, Valard's performance had come around. But my biggest concern was, yes, a potential commercial claim from Valard.

MS. HUTCHINGS: Right.

MR. KEAN: That's why we had done all the work and that's why I wanted a commercial reset. We didn't get a commercial reset. We're working through issues with them. And we had agreed to work through issues in our steering committee two weeks, or one month before that in Montreal with Valard.

MS. HUTCHINGS: Right.

MR. KEAN: So we're working through that but we need to be mindful that there could be a commercial exposure there. We don't know what they've got in their pocket –

MS. HUTCHINGS: Mm-hmm.

MR. KEAN: – and it's gonna take effort for us to go through that.

So, I guess this is important for me, because I've been – there's been accusations about me not being transparent –

MS. HUTCHINGS: Yes.

MR. KEAN: – with where things were. I think the project records speak fairly clearly as to where the project was and what my concerns were and who I was communicating to, Commissioner.

There's no – should be no surprises that – where the cost was or that a claim was potential. My view was that – and what was presented in March of 2016, some nine months before this, is that we would trade LDs for time, and the reason for that is that there was no point of accelerating Valard. Let them take their time because Alstom is going to be the critical path to moving power down the transmission line.

MS. HUTCHINGS: Okay, all right.

I have one last question, Mr. Kean. By the time that you left, what – where was the situation with the test pitting and the boreholes?

MR. KEAN: All of the boreholes had been pretty much completed.

MS. HUTCHINGS: Yeah.

MR. KEAN: The test pitting had been completed across the Island, so we knew what type foundation was gonna be in pretty much every location.

MS. HUTCHINGS: Right.

MR. KEAN: So that – it became – 2017 became much more straightforward.

MS. HUTCHINGS: Okay, all right.

Thank you.

I have – those are all my questions.

THE COMMISSIONER: Okay.

Redirect.

MR. COLLINS: Thank you, Commissioner.

Mr. Kean –

MR. KEAN: Mr. Collins.

MR. COLLINS: – have you had a chance to review, overnight, P-00869 and P-00870?

We discussed yesterday that those were the HCSS sheets showing changes –

MR. KEAN: No, I'm sorry, I didn't.

MR. COLLINS: It's okay. If at any point –

MR. KEAN: To be honest, I forgot.

MR. COLLINS: If you can – if you have a look at those sheets, and if you can find a place where the EPCM changes are logged, we'd appreciate that information.

MR. KEAN: I'll take an action to look at that for you.

MR. COLLINS: Thank you.

I have a – you referred, I believe, when speaking to Mr. Peddigrew, to a number – to two diagrams showing what parts of the transmission line overruns were caused by planning errors and by other things, and I believe those are found at P-01769, volume 2, tab 52 – I just want to make sure I have the right ones – at page 43 and 45.

This is the first –

THE COMMISSIONER: What page again, Mr. –?

MR. COLLINS: Page 43.

MR. KEAN: Volume 2, was it?

MR. COLLINS: Volume 2.

MR. KEAN: Volume 3, sorry.

THE COMMISSIONER: Volume 3.

MR. COLLINS: Volume 3, yes, tab 52. I apologize.

So this is one of the two diagrams. This is the fishbone diagram, Mr. Kean.

MR. KEAN: I did make reference to that diagram, yes.

MR. COLLINS: And so it shows – if we scroll down a little, it shows a mixture of various causes, but it doesn't quantify them. And the other slide, I believe, you were referring to is page 45?

MR. KEAN: I was actually referring to –

MR. COLLINS: Slide 44. No?

MR. KEAN: Slide – page 13.

MR. COLLINS: Page 13.

MR. KEAN: This is the only one that really gets into the aspect of planning errors.

MR. COLLINS: Thank you.

That's my only question about that.

If we go back to P-03184, which is volume 3, tab 74, on page 5. When it says 72 per cent incurred against budget, that's against the AFE3 budget. Is that right?

MR. KEAN: That's correct, yes.

MR. COLLINS: But it's not the original budget, but it's after two increases.

MR. KEAN: It's against the current control budget.

MR. COLLINS: Yeah. You had another conversation with Mr. – those points are both closed now.

You had another conversation with Mr. Peddigrew about schedule reserve, in which you were saying that you were advocating for a schedule reserve. And I was wondering – if we

go to P-00094, which is in volume 2, tab 21, page 15.

THE COMMISSIONER: That's going to be on the screen.

MR. COLLINS: Yes, it will be on the screen.

On the bottom of the page – I apologize, I have the wrong page. We'll have the page in a moment.

Commissioner, I'll refer you to this later.

Mr. Kean, do you recall making a comment in here about how seeing that the analysis in this supports the need for utilizing the schedule – the natural schedule reserve?

MR. KEAN: Their – the natural schedule reserve that existed was the period of time between the July 2017 targeted first power and the public statement regarding first power from Labrador in 2017. So that's a, you know, four to five, six month – sorry, it'd be a five-month period, right.

MR. COLLINS: Yes. So that –

MR. KEAN: That's what we called – that was the reserve that became available.

MR. COLLINS: And you were advocating for a Nalcor executive to make use of the natural schedule reserve?

MR. KEAN: That became apparent in February of 2013 when the market intelligence from the powerhouse contractors came in, and that was part of a discussion and a decision in order to risk – de-risk the schedule, particularly the contractor – the bidders expressed concern about the ability to do the – construct the spillway in a – in the time to allow for a 2015 diversion.

So, a presentation – an analysis was done in that February of 2013 while the bidding was under way for the powerhouse contract. And the recommendation was made to the Nalcor executive committee and CEO to allow us to make use of that schedule reserve that existed between July and December, and to adjust the river diversion from 2015 to 2016 and do some resequencing of the project. And still achieve the

target for first power then – would then not be July of 2017, it would then align with the end of December of '17 which was consistent with the public announcement, I guess.

MR. COLLINS: And that point, Commissioner, I have found I had the wrong exhibit number. It's P-00130 at page 15. We don't need to go there now.

Mr. Knox – sorry, Mr. Kean. You had a conversation with Mr. Coffey about who was responsible for what parts of the risk analysis, and I'd like to go through and clarify that to some extent.

So, my understanding is that Nalcor was responsible for selecting Westney as a risk management consultant. Is that right?

MR. KEAN: Correct.

MR. COLLINS: And Westney – once Westney was selected, Westney was largely responsible for setting up the Monte Carlo approach for – and for identifying what inputs were needed from Nalcor.

MR. KEAN: That's correct.

MR. COLLINS: So Westney advised you to have a tactical risk and a strategic risk separately.

MR. KEAN: Yes.

MR. COLLINS: And that you'd need two inputs for each, a best cost and a worse cost.

MR. KEAN: Yes.

MR. COLLINS: And they recommended, for example, for the tactical that you arrange by various package instead of arranging by risk.

MR. KEAN: Yes.

MR. COLLINS: So that approach – any criticisms of that approach, those are criticisms of Westney's work.

MR. KEAN: Yes.

MR. COLLINS: But my understanding is that Nalcor chose the inputs, the best and the worse cost for the tactical risk and also the strategic risk?

MR. KEAN: For the tactical risk; not so much for the strategic risk, no.

MR. COLLINS: So this is a point that is important. Did Westney provide analysis to Nalcor that helped inform your choice of inputs, or did they choose the inputs?

MR. KEAN: The – so the discussion on the strategic risk was a discussion whether the strategic risk was open or not. So the aspect of a political risk, for instance, that Mr. Dodson made reference to of \$300 million, it would have been a Nalcor decision not to include that, not a Westney decision.

MR. COLLINS: So Nalcor chose which risks to arrange?

MR. KEAN: Based upon the discussions, and of the team itself that were knowledgeable of that area. When it came to identifying those three major strategic risk that influenced cost, time and – cost and time, strategic time. Nalcor provided the inputs – the Nalcor SNC team for the schedule time analysis.

MR. COLLINS: So the carrying cost.

MR. KEAN: No, the time risk analysis that showed from 11 to 21 months. So Nalcor provided those inputs to Westney.

MR. COLLINS: And those inputs are, for example, the river diversion might take between three months and six months.

MR. KEAN: Extra, that's right.

MR. COLLINS: That kind of thing.

MR. KEAN: That was provided by, you know, the construction people, the people that were knowledgeable in that area. Where Westney provided expertise in sizing risk was the labour productivity and the availability of labour.

MR. COLLINS: Yup.

MR. KEAN: So, Mr. Dodson was provided – we provided Mr. Dodson with the details of how many person hours were in the estimate –

MR. COLLINS: Yup.

MR. KEAN: – what our hourly rates were, and from their metrics they looked at it and said: based upon what we see for concrete production, we think it could be an extra X-number per cent here. And they took our rates and framed that, what is known – I think it's \$350 million there we went through yesterday for –

MR. COLLINS: Yes.

MR. KEAN: – potential labour. So that would have been their number to come up with that.

MR. COLLINS: So, now was that a case where they did an analysis which you accepted and it was your responsibility to accept or reject it, or was it a case where they had the responsibility of choosing the best and worst cost?

MR. KEAN: No, at the end of the day they provide an analysis that's Nalcor's decision to accept or reject.

MR. COLLINS: Thank you.

And I've – could we go to P-03166, which is in volume 2, tab 41.

And this is a document you discussed with Mr. King. And in – I believe you already looked at this paragraph, but if you scroll down a little, you say: "... the #1 strategic risk identified in 2008 for this project related to Governance and the resultant challenges of trying to execute a mega project as an entity of the crown." And then skip: "... the situation over this past 6 months is a prime indicator of what happens when a strategic risk outside the project team's control takes hold."

Is this an aspect of the political risk we discussed?

MR. KEAN: It is.

I would like to correct my statement here. When I looked at volume two of this five-volume set, it does give the main risk from 2008 and the

number one – governance is not the number one risk. It's far down the list.

MR. COLLINS: It's number two.

MR. KEAN: No, it's further down than that. It's risk number one – it's key risk number one but it's not the biggest exposure risk.

MR. COLLINS: Okay.

MR. KEAN: That was, again, labour productivity, I think at that point in time, but it was key risk number one in numerical order. Key risk number two was entity of a crown, just for the Commissioner's benefit. So, it didn't – it wasn't the risk that came with the biggest cost or schedule exposure to the project, or presented the biggest cost or schedule exposure.

MR. COLLINS: But it was a risk that was identified very early on as being a major risk.

MR. KEAN: Yes, and part – where a lot of the work fell out of that and some of the risk frames talk about the actions that were taken and what was done.

MR. COLLINS: And Mr. Dodson recommended that Nalcor include it as one of the risks to be ranged.

MR. KEAN: Yes, he did.

MR. COLLINS: And Nalcor chose not to accept that advice.

MR. KEAN: No, in 2008 it was a – and through 2010.

MR. COLLINS: In 2012, Nalcor chose not to include it as an item to range.

MR. KEAN: The residual view was deemed to be small by the Nalcor team. So there was no – Nalcor didn't accept Mr. Dodson's view that it would be \$300 million.

MR. COLLINS: Those are my questions, Commissioner.

THE COMMISSIONER: Thank you.

All right. Thank you, Mr. Kean, I appreciate your time.

So we'll adjourn until tomorrow morning. I think we start with Astaldi witnesses tomorrow at – we start at 9:30 rather.

All right.

MR. KEAN: Okay.

Thank you.

CLERK: All rise.

This Commission of Inquiry is concluded for the day.