COMMISSION OF INQUIRY
RESPECTING THE MUSKRAT FALLS PROJECT

Transcript | Phase 2 Volume 12

Commissioner: Honourable Justice Richard LeBlanc

Friday 15 March 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.

MS. O'BRIEN: Good morning.

MR. E. KNOX: Good morning.

THE COMMISSIONER: Good morning, gentlemen.

MR. SNOOK: Good morning, Sir.

THE COMMISSIONER: Ms. O'Brien.

MS. O'BRIEN: Thank you.

Commissioner, on January 10 of this year, 2019, the Commission issued a press release advising the public that we were interested in interviewing workers on the Muskrat Falls Project who could give us their views about why the project is over budget and over schedule. We had an extremely positive response to that request and ultimately we interviewed 23 people. While each of those 23 people, of course, had their own unique experience, we found that common themes did emerge from those interviews.

So we have selected four of the workers who came forward to be interviewed to be part of the panel that will be presenting today. These men have been chosen because they represent different parts of the project. They've done different pieces of work. They've worked on different components of the project. Again, each one of these men has his own experience and opinions, but collectively, when you hear all their evidence today, the major themes that we heard from the larger group of interviews, collectively, will be reflected in the testimony of these men.

We would've liked to have had some Indigenous workers on this panel or even women workers. Both of those groups have been well represented on the Muskrat Falls Project. But we were limited by the people who came forward and wanted to be interviewed. And even among those who were interviewed, there was only – not everyone wanted to come and appear publicly. And some people we tried to do a follow-up on and were unable to reach them. So we wanted this to be a volunteer engagement, and so that's why we have the panel that we do today.

So before we begin, I'm going to just seek to enter the exhibits for today. I'm seeking to enter Exhibits P-02139 to P-02143; those are exhibits relevant to today's testimony. I also have a series of exhibits that were relevant to Scott Shaffer's testimony from Grant Thornton. These are exhibits that have been working through our processes and getting cleared. So I'm seeking to enter P-01821, P-01822, P-01826 to P-01834, P-01854 to P-01857, P-01859, P-01860, P-01868, P-01869, P-01894, P-01895, P-01899, P-01900, P-01931, P-01933, P-01948, P-01951, P-01955 and P-01956.

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

MS. O'BRIEN: Okay.

I'm gonna just go from one side to the other on the table there and then I'll ask Madam Clerk if she can swear and affirm the witness. She is aware of everyone's preferences.

So first, to – on the right-hand side of the table, my left, we have Mr. Ed Knox, then we have Mr. Perry Snook, we have Mr. Ken White and we have Mr. Larry Cavaliere.

THE COMMISSIONER: Okay. All right.

So, Mr. Knox, I'll ask that you stand, please. And do you wish to be sworn or do you wish to be affirmed?

MR. E. KNOX: Sworn, please.

THE COMMISSIONER: Sworn. Take the Bible in your right hand.

CLERK: Do you swear that the evidence you shall give to this Inquiry shall be the truth, the

whole truth and nothing but the truth, so help you God?

MR. E. KNOX: Yes, I do.

CLERK: State your name please.

MR. E. KNOX: Edward Knox.

CLERK: Thank you.

THE COMMISSIONER: Mr. Snook.

MR. SNOOK: Sir.

THE COMMISSIONER: Do you wish to be sworn or affirmed?

MR. SNOOK: I'll be affirmed, please, Sir.

THE COMMISSIONER: All right.

MR. SNOOK: Thank you very much.

THE COMMISSIONER: Okay.

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

MR. SNOOK: I do, ma'am, yes.

CLERK: Please state your name.

MR. SNOOK: Perry Snook.

CLERK: Thank you.

MR. SNOOK: Thank you.

THE COMMISSIONER: Mr. White, do you wish to be sworn or affirmed?

MR. WHITE: Sworn, your Honour.

THE COMMISSIONER: Sworn.

CLERK: Take the Bible.

Do you swear that the evidence you shall give to this Inquiry shall be the truth, the whole truth and nothing but the truth, so help you God?

MR. WHITE: I do.

CLERK: Please state your name.

MR. WHITE: Kenneth White.

CLERK: Thank you.

THE COMMISSIONER: Mr. Cavaliere.

MR. CAVALIERE: I want to be sworn.

THE COMMISSIONER: Sworn.

CLERK: Do you swear that the evidence you shall give to this Inquiry shall be the truth, the whole truth and nothing but the truth, so help you God?

MR. CAVALIERE: I do.

CLERK: Please state your name.

MR. CAVALIERE: Larry Cavaliere.

CLERK: Thank you.

THE COMMISSIONER: Okay.

Let me just first of all thank the four of you for responding to our request looking for workers to participate in the Inquiry. And I appreciate the fact that you're here today.

Ms. O'Brien.

MS. O'BRIEN: Thank you.

I'm going to begin with some time with each one of these gentlemen to go over a bit about their background. And I'm gonna start with Mr. Snook.

And, Mr. Snook, if you could just pull the microphone, tilt it a little bit towards you.

MR. SNOOK: There you go.

MS. O'BRIEN: Thank you. All right.

So, Mr. Snook, you are a quality assurance professional. And in a few minutes we're gonna hear from someone who's an electrician and someone who's a carpenter. And most of us

understand what electricians do or most of what they do, and most of what carpenters do, but a lot of people don't understand or don't have, you know, familiarity with what a quality assurance professional is.

MR. SNOOK: Sure.

MS. O'BRIEN: So I'm gonna ask if you can start by giving us an explanation as to what it is that – what it is you do.

MR. SNOOK: Sure. Thank you very much for asking.

So for the role of quality assurance what that – high level, what that would encompass is the verification and validation of the contractor or vendor's quality control activities. So when you hear quality control and quality assurance, sometimes they may become intermixed. Quality control would be doing the test, performing non-destructive testing; a slump test for concrete works, for example. Quality assurance is the verification that the test has been completed correctly to the approved procedure code or standard and that the results fall within the requirements. Overall, for a project, they would involve the testing side as well as for the verification and validation, again, of the project procedures and processes, which often includes an auditing function as well.

MS. O'BRIEN: Thank you.

Now, your CV has been entered into evidence. It's P-02142, please. Madam Clerk, you can bring that up. And if you – it will come up on the screen in front of you, Mr. Snook.

MR. SNOOK: Sure.

MS. O'BRIEN: This has been entered into evidence so we – you know, we don't need you to go through it, every line in detail.

MR. SNOOK: No.

MS. O'BRIEN: But I would like you to give the Commissioner a review of your education and work experience prior to you coming on the Muskrat Falls Project.

MR. SNOOK: Sure thing.

I studied business at Memorial University. Afterwards, I took a welding engineering technology course at the College of the North Atlantic. Also, I have a master's certificate in project management from York University. I have various auditing courses and I hold six inspection certifications; one is a level-2 CWB and with multiple endorsements. For the others are – three API certifications, as well as three Canadian Standards Board for non-destructive examination.

MS. O'BRIEN: So CWB and API, what are those?

MR. SNOOK: Sure thing.

CWB stands for the Canadian Welding Bureau. So to perform welding inspections on this project the requirement for the contractors was to be CWB certified for any of the works that were done within Canada. API is the American Petroleum Institute. This would fall under the umbrella of registered equipment – anything that could be dangerous, for example, anything that could leak with a hazard commodity contained or anything that did have an explosive potential as well.

MS. O'BRIEN: Okay.

And that's a good review of your credentials; just if you could take us through some of your work experience prior to coming and working on this project.

MR. SNOOK: Sure thing.

So prior to the project I began into the industry back in 2006. I worked as a quality control technician first. I was on the tools doing the checks and for the balances. Then I moved into quality assurance. My first quality assurance role was on the CNRL project for the tank farm out there; extremely difficult project. And from there I just grew on that knowledge base.

Then I joined Syncrude Canada back in 2008 to where I stayed for five years. My last two years with Syncrude Canada as a direct employee was with their major projects division. Within that division I would have, at any given time, about eight to 10 projects ongoing and involving civil, structural, piping, mechanical and electrical

scopes with 10 inspectors reporting directly to me.

In 2013 I applied on a website to join the Muskrat Falls Project. It was quite an interesting project to me. And where I have a young family I was quite interested to come back to the Island as well – excuse me.

MS. O'BRIEN: And so we'll get to some of your work but before that, you – we've heard evidence how the Muskrat Falls Project was divided up into three main components: C1 being the Muskrat Falls generation site, C3 being the HVDC specialties –

MR. SNOOK: Yes, Ma'am.

MS. O'BRIEN: – and C4 being the transmission lines, so the overland transmission lines, I believe. So I understand that in the course of your work on the Muskrat Falls Project you actually had involvement in all three of those components. Is that right?

MR. SNOOK: I did. Yes, Ma'am. Yes.

MS. O'BRIEN: Okay.

MR. SNOOK: There's actually a fourth there as well but that's the SOBI for the marine crossing for the cable as well.

MS. O'BRIEN: That's correct, yes.

MR. SNOOK: Yeah.

MS. O'BRIEN: All right, so can you just take us through, again, just at a high level – because as we go through the morning –

MR. SNOOK: Sure.

MS. O'BRIEN: – we're going to get into more of the details of your work – but the various jobs or positions you've held on the Muskrat Falls Project.

MR. SNOOK: Certainly.

My first position with the project was as an inspection coordinator, I was hired to arrange and to facilitate the third party inspectors globally for all of our manufacturing and fabrication activities. You may hear me call it as a TPI.

So at the beginning of that I created a budget for that activity. What it entailed was to coordinate with the various quality coordinators assigned to a package, package engineers as well as area managers as well, to determine what the inspection criteria were for a particular package, what they were looking for, what the expectations were, experience for the applicable inspectors, as well as any required certifications, in addition to, of course, the vendor's location and for the fabrication duration as well.

I then moved about six to nine months after that. I continued in that same role as well as a quality coordinator for the C4 packages for the transmission lines. I was involved with the – with fabrications for the HVDC towers as well as assistance with the HVAC tower completion for their manufacturing scope, as well as with hardware and for cables as well.

In May of 2016, I was called and I was asked to take over as the quality manager for the C3 portion. They had (inaudible) there as quality lead position. So that was to – until, again, the same role in ensuring that our vendor, GE Grid Solutions – at the time they were Alstom – performed their work according to the contract and to the project specifications, both on and off-site.

MS. O'BRIEN: Okay, thank you.

And just to get – when did you start with the project?

MR. SNOOK: August of 2013, Ma'am.

MS. O'BRIEN: Okay.

And so for most of your time on the project you worked directly for Nalcor, is that correct?

MR. SNOOK: For the project itself, yes, Ma'am.

MS. O'BRIEN: Yes.

MR. SNOOK: Yes.

MS. O'BRIEN: Okay.

And when did you leave the project?

MR. SNOOK: I left the project in May of 2016 I do believe it was? Or was it May – no, sorry, I apologize, May of 2017.

MS. O'BRIEN: Okay.

And what's your current employment position? Where are you right now?

MR. SNOOK: I'm back with Syncrude Canada at the Fort McMurray location as a project quality lead for procurement and for on-site construction with, again, civil, piping, mechanical and electrical inspectors reporting directly to me, as well as working hand in hand with our EPC companies as well. Our – so for EPCs would stand for engineering, procurement and construction.

MS. O'BRIEN: Thank you.

And that is a term we've heard here before.

MR. SNOOK: Oh, okay. Yes.

MS. O'BRIEN: Which is – we're – one of the terms we've gotten used to, probably.

MR. SNOOK: Excellent.

MS. O'BRIEN: All right.

And just for clarification, you're not a member of a union, are you?

MR. SNOOK: No, Ma'am.

MS. O'BRIEN: Okay.

Thank you very much for that overview.

I'm next going to turn to Mr. Cavaliere, who is a journeyman carpenter.

MR. CAVALIERE: Yes, I am.

MS. O'BRIEN: Okay.

And I'm just going to – thank you, yes. Pull that microphone over.

And not everyone might understand these terms, but a journeyman carpenter is the same thing as being a red seal carpenter. Is that correct?

MR. CAVALIERE: Yes, a journeyman carpenter is a carpenter which has experience and a red seal is – it's a federal test, a federal exam, but they're equivalent (inaudible) a red seal or a journeyman carpenter. Just because you didn't write the federal exam, you're not a red seal.

MS. O'BRIEN: Okay.

MR. CAVALIERE: But the experience is the same.

MS. O'BRIEN: Okay, thank you.

And so I'm going to get you to go – your CV has also been entered into evidence. It's at P-02143 and that's tab 5 of the binder there in front of you. Again, you don't need to go through every line of your CV, but you have a considerable amount of experience, Mr. Cavaliere, really all over the world.

MR. CAVALIERE: Yes.

MS. O'BRIEN: So I'd like you to review that for the Commissioner so he can have a good understanding of your background and experience.

MR. CAVALIERE: Yeah, I've worked around the world. I've been in Saudi Arabia working in a copper process plant. I don't know the dates. I got to get the dates again.

MS. O'BRIEN: The dates will be there on your –

MR. CAVALIERE: Okay.

MS. O'BRIEN: And that's going to be in evidence, so that's fine.

MR. CAVALIERE: I also worked in Mauritania, Africa, building iron ore plant. I was in charge of quality assurance, cost controls, scheduling, productivity, make sure everything got done on time, on budget. I was working for the client. The client was the government, the SNIM it's called. It's an entity of the Mauritania

government which runs the iron ore in Mauritania.

I worked for SNC-Lavalin, Montreal. Sorry, when I was working in Saudi Arabia it was for SNC-Lavalin, Australia. My direct boss was Scott Jose was his name. He was – he's an engineer. So – but they hired me because mostly with all my knowledge. I mean I'm a guy – I'm a hands-on guy. I mean I didn't go to school very much, I'm just – you know, I'm a carpenter of trade but I've been working construction since the age of 17 and I've done several big projects.

I also did a bridge in Montreal, highway 25– with Kiewit and Parsons. I was – they put me in charge of the two – the four pylons in the middle of the river which were, like, the critical path of the job. I finished the job two months ahead of schedule with no incidences and on budget. So that was a good milestone for me. I mean, I think Kiewit was very happy with that too. For some other reasons we just – I just didn't continue with them.

MS. O'BRIEN: Okay.

MR. CAVALIERE: If I had other opportunity to go somewhere else, I went. Now I come back to Muskrat Falls. I had finished my job in Mauritania. I went on an SNC website. They were looking for a quality assurance inspector for Muskrat Falls. I applied, did interview with some people at the Muskrat Falls on site – phone interview. After about six weeks or so I got a phone call to see if I was still interested in the position. I said I was. The next thing you know I went to St. John's with orientation for Nalcor and I started work in Muskrat Falls in September – I think the beginning of September of 2013.

I worked for Nalcor almost nine months, I think I was, and then I decided to leave Nalcor to go work for Astaldi. I think my – I think I could have helped Astaldi do better work and, you know, I could have helped them out with my knowledge and that didn't work out good either.

My way of thinking and their way of thinking were two different ways of thinking. So I tried to – how do you say? I tried to steer them in the right direction – not the right direction but in a way that, you know, that we had some kind of productivity going and some kind of schedule. I made some sense out of it and I guess they didn't really want to hear it.

I did – well, I think what got me in hot water was the time I wrote out an email to my boss saying that the ICS building was not attainable – not doable in the time constraints we had. And after that – it was not long after that I was terminated, but –

MS. O'BRIEN: We're gonna come back to – this morning – to some –

MR. CAVALIERE: Yeah.

MS. O'BRIEN: – of your testimony –

MR. CAVALIERE: So –

MS. O'BRIEN: – with respect to that ICS.

MR. CAVALIERE: – that was it, and after that, once I got finished with them, I went – I knew some people at AGF; they were rebar installers for Astaldi. I worked for them for a while. Even then, they – they got a new – new management came in, and they brought their own team. And since I was, like, I was the last guy in, I didn't really fit with their team or they had their own team, so that job lasted about six months, and then I decided to go back to what I – what I always did – what I am, a carpenter.

So I joined the union, which – I've been with union since the age of 17, 'cause in Quebec, if you wanna work in construction you got to be in the union. So I've been in the union almost all my life, so I joined the union here in Newfoundland, Local 579, carpenter international union, and I'm still working at Muskrat Falls as we speak, as a carpenter.

MS. O'BRIEN: Yes, you're the one – you're the member of our panel who's actually still working on the project.

MR. CAVALIERE: Yes.

MS. O'BRIEN: Yeah. Okay.

And I just want to get a little bit of a sense – so, you know, you have worked on a number of megaprojects over your career.

MR. CAVALIERE: Yes, I've (inaudible).

MS. O'BRIEN: Yeah.

And, just to get some sense of the length of that career, you finished your apprenticeship and started working as a full-time carpenter in 1981.

MR. CAVALIERE: Yes, yes.

MS. O'BRIEN: And you've been continuously employed in –

MR. CAVALIERE: Yes, I've been working all my life. I think, if I had to prove, I collect unemployment one time – when I moved to Labrador.

MS. O'BRIEN: Okay.

MR. CAVALIERE: I've always managed to work all my life.

MS. O'BRIEN: Okay, thank you.

I'm just – wanna just make sure I've covered off.

So, we'll – we're gonna get, in a little bit more, to some of the details of your work, but your – all your time in the Muskrat Falls Project has really been on the Muskrat Falls generation site.

MR. CAVALIERE: Yes.

MS. O'BRIEN: Okay.

MR. CAVALIERE: Spillway and intake – yeah, spillway and generation station, yes.

MS. O'BRIEN: Yeah. All right. Thank you.

Okay, I'm gonna turn now to Mr. White. So, Mr. White, you're an electrician by trade, is that right?

MR. WHITE: That's correct, yes.

MS. O'BRIEN: Okay, and again, you're a red seal electrician.

MR. WHITE: Interprovincial red seal, yes, correct.

MS. O'BRIEN: Okay.

So, again, can you give the Commissioner an overview of your work experience? Again, it's a long career; you've worked at a number of places I think the Commissioner will find interesting.

Can you just give us a sense of that work experience that you have?

MR. WHITE: Of course.

I started my electrical trade in 1970 with the pre-employment nine-month course, and came out as a second-year apprentice. Labrador was quite busy at that time, so I went to Labrador with a company called Comstock, and they were building the new concentrator plant in Labrador. IOC was relatively new then. I think it was known as Carol Lake before it became Labrador City.

So, I worked up there for a couple of years and when I come out to finish my apprenticeship I went to work on the Health Sciences complex when they were building it here in St. John's. After I wrote my exam and my red seal, the next day I was on a plane to St. John, New Brunswick to work for Irving on the oil refinery. They were doing a major expansion, and I was over there for a couple of years.

After that project finished I went to Baffin Island to do a three-month contract and I ended up getting a job with the Public Works, the Northwest Territory government at the time, and I was in Baffin Island for 10 years. And my role there was area maintenance officer, which – basically I was responsible for all the trades for 13 remote communities and whatever: troubleshooting, fixing upgrades to the airports or any facilities that were in those communities.

After 10 years in Baffin Island I had a phone call from a co-supervisor to see if I was interested in going to Montreal with the Kativik school board. And, at the time, the Kativik school board had a mandate to upgrade all of the educational facilities and other infrastructure in James Bay, which was the Ungava coast and the Hudson coast of Northern Labrador.

So, I said: I'm not bilingual; I don't know why I, you know, I would be picked to go. And he said, right now, he said, we need an English-speaking technician that understands the native culture of the Far North and Inuktitut was the first language. And after working in Baffin for 10 years, of course, I was offered the role. So I worked with the school board for four years until, basically, all the construction was done. I think we done about one hundred million in schools and infrastructure in the four years – various consulting firms and contractors, and I was more or less a liaison.

When that came to a close I went to Ottawa and applied for a job with the Ontario provincial government and I got a role as a maintenance supervisor with the Ottawa Carleton Regional Housing Authority. And they had a fairly big portfolio of housing units and high-rise buildings and whatnot to look after. I believe there was 10,000 units in total, and whatever. After several years in Ottawa, I sort of got the urge to go back into the private sector, so I left my public service job and came back to Newfoundland and I got offered a job at Hibernia, commissioning and start-up. So I worked on the Hibernia start-up until the tow out in 1997.

At the time, the work was not too plentiful, so I decided I'd cross the Gulf again. And I went back in construction. I worked in Thompson, Manitoba for a while and then I got a job with a contractor in Winnipeg doing inland grain terminals. And, basically, what they were doing is all the little small towns that had grain elevators – they were centralizing them and making very large inland grain terminals in one central location. And I worked with the – with that company for three years, doing mostly construction and start-up of the inland grain terminals.

And when that was finished I came back to Newfoundland and went to work with IBEW 2330, which I'd been a member of since 1970, and –

MS. O'BRIEN: And just to be clear, IBEW 2330 – so this is one of the unions for electricians in the province, and – but this is the union that deals with construction and industrial electricians.

MR. WHITE: That's correct.

MS. O'BRIEN: And then there's another one for linesmen.

MR. WHITE: That's correct.

MS. O'BRIEN: Okay. Thank you.

MR. WHITE: So over the next few years I sort of bounced from job to job, depending on where the work was. It could've been anywhere in Canada, whatnot. Most of it was in Eastern Canada: we had some work in PEI, we had some work in Come By Chance, and some work in Labrador and whatever.

And I believe it was April of 2013, and I finished up working in Labrador City with (inaudible); the contract was finished. And I was going to head out West again, and there was a job came up in Muskrat Falls. The contractor at the time was IKC-ONE and they were doing the drilling and blasting and getting the site ready for construction, basically. And I went up there as an electrician with IKC in April of 2013.

IKC-ONE finished in December and I came home for Christmas, and early in January I had a call to go back with Iskueteu. Iskueteu is the electrical contractor I was working with before Christmas with IKC; they're a division of GJ Cahill. And I went back to work in January with Iskueteu on the Muskrat Falls Project. And I was there until June of 2015 and I left to take a position on the Hebron Project in Bull Arm. And, of course, I finished up my electrical career on Hebron and retired in November of 2016.

MS. O'BRIEN: So when you made the transfer from Muskrat Falls to Hebron, that would've been closer to home for you, would it have been, working on the Hebron Project?

MR. WHITE: Very much so, yes.

MS. O'BRIEN: All right. And thank you very much for that.

So that's – you worked on a lot of big projects – a lot of experience in Canada's North.

MR. WHITE: A lot of experience in Canada's North and, of course, several years in Alberta on

the various oil and gas projects: CNRL, Firebag, Albian Sands, Syncrude, Suncor, and – yes, most of my working career was industrial and it was large projects – expect for my time with, of course, the public service.

MS. O'BRIEN: Okay. Thank you very much.

And we'll come back now to some of the specific work with you. But throughout your time on the Muskrat Falls Project, you were an electrician working for Iskueteu, which is a division of GJ Cahill, and in some cases Iskueteu would've subcontracted for other contractors working on the site.

MR. WHITE: Iskueteu was the subcontractor for IKC and we were the subcontractor for Astaldi. And IKC-ONE are – the major responsibility was to keep the spillway and the powerhouse free of water so the other trades could get in and do their work and, of course, hook up the work trailers and, you know, lunchrooms and various infrastructure. But it was mostly to keep the water out of the site so everybody else could do their work, was the main –

MS. O'BRIEN: So keep the pumps working.

MR. WHITE: Yeah.

MS. O'BRIEN: Yeah, okay.

Okay, thank you very much.

All right, Mr. Knox, last but not least, I'm gonna turn to you. You are also a quality assurance professional. Can you tell the Commissioner a bit about your background and experience, please?

MR. E. KNOX: Okay, yes, sure.

Basically I started my career back in the early '90s after graduating from geomatics engineering. And I started at the Hibernia project, actually; I done some co-op program courses there – my work terms. And from there I was recruited by Schlumberger, which is an offshore oil and gas company. I spent approximately seven years with Schlumberger, working as a positioning engineer in the offshore industry.

I worked at different locations around the world: the North Sea mostly, British, Norwegian sectors, North Africa, Gulf of Mexico and West Africa were the majority of the places that I visited during that employment. From Schlumberger I went to work with Peter Kiewit and Sons' and the offshore facility in Marystown as a dimensional control coordinator – inspector. And from there I went to the Diavik Diamond Mines, again, with Kiewit as their survey manager. And, basically, that was the lake diversion for a diamond mine in Lac de Gras, which is about 300 kilometres north of Yellowknife. I spent approximately three years there as well.

And from there I moved to Fort McMurray where I worked for an engineering firm, Amec, who was the EPCM for Shell on the Albian Sands expansion project for Muskeg River. And I was there as the coordinator for engineering, quality, subcontracts for materials testing, welding and so on and so forth – so, more or less, working on the client side, overlooking subcontractors.

From there I came back home after spending 15 years away from home and travelling. I came back home for an opportunity with O'Connell Construction as, I guess, their survey manager/quality manager on the plant facilities in Long Harbour for the Voisey's Bay project.

So, I was there for approximately three years as well. And I then went on the Muskeg – the Muskrat river job, okay? And I went there as the quality manager for the bulk excavation and the civil works side.

MS. O'BRIEN: Okay, so that – we're gonna hear more about that package. But that was package CH0006, I think. So that was the real –

MR. E. KNOX: Yes.

MS. O'BRIEN: – the first major package on site.

MR. E. KNOX: Exactly.

MS. O'BRIEN: So you're doing – yeah.

MR. E. KNOX: Yes.

MS. O'BRIEN: Okay.

MR. E. KNOX: And then, obviously, O'Connell finished up that work in – I guess it was early 2013 by the time all the packages – turnover packages and everything else was completed. I then assumed the role as their quality director for a period of six to eight months. And then I was offered a job with Astaldi as their quality manager for the contract CH0007. So then I assumed that role for a period up until 2018 – in October 2018.

MS. O'BRIEN: Okay.

And that's when – you were with Astaldi then right up until Astaldi's work was terminated on the site in October.

MR. E. KNOX: Yes, exactly.

MS. O'BRIEN: Okay.

MR. E. KNOX: And my current position – I was quality director on the Site C hydroelectric project for Peace River and Hydro partnership.

MS. O'BRIEN: And that's what you're doing right now.

MR. E. KNOX: Yes.

MS. O'BRIEN: Working on Site C.

MR. E. KNOX: Yes.

MS. O'BRIEN: Okay. Thank you.

And just to be clear, when you say you were working for O'Connell on the bulk excavation contract, O'Connell would've been part of a joint venture – that would be IKC-ONE.

MR. E. KNOX: Yes, exactly.

MS. O'BRIEN: Right, okay. So that's the same company that Mr. White was working as a subcontractor for?

MR. E. KNOX: Exactly.

MS. O'BRIEN: Same entity.

All right, thank you.

And again, Mr. Knox, you're not a member of a union, are you?

MR. E. KNOX: No, I'm not.

MS. O'BRIEN: Okay, great.

Okay, so now we're gonna turn to some of the substantive questions and I'm gonna start with you, Mr. Cavaliere.

So when our – the lawyers here at the Commission who were conducting these interviews for the people who responded to the press release, you were asked a question in that interview: What do you believe contributed most to the cost and schedule overruns?

And you had a very clear answer. Your answer was: Poor planning.

MR. CAVALIERE: Yeah. No planning.

MS. O'BRIEN: So – and this was – you're not alone in this. We heard a similar response from a number of people that we interviewed.

So I'd like you to give the Commissioner a little, you know, more detail on what leads you to that conclusion – that one of the major issues, or the major issue here, was poor planning.

MR. CAVALIERE: All the other jobs I always worked with was – planning was, like, the main focus of every job. You plan your work and you execute. At Muskrat Falls, we don't plan the work; we just execute. Whatever happens, happens. They're always working on a reaction mode. You never – you can never foresee what's gonna be tomorrow's next step.

And it said to me, like, you can't run a job if you don't know your next step. You have to know what you're doing tomorrow or the day after – yeah, at least a week ahead of you; you got to be able to figure out what you're doing for the next week. It changes because temperature; it changes because of manpower or weather. But you have to have a bit of foresight of what you're gonna be doing tomorrow. And there was no – zero planning.

I mean, that's – to me, that was the main issue why there's cost overruns, I guess. The lack of

knowing what you're gonna be doing next – it's gonna inherently bring you extra costs. It's chaos. That's what I'd call it.

MS. O'BRIEN: Okay.

So when you're here you're primarily working for Astaldi. And what was your reaction when – when did you first get a sense of what Astaldi's schedule was, and what was your reaction?

MR. CAVALIERE: Well, when I started working with Astaldi, when they hired me to go work as superintendent – powerhouse superintendent – the first thing we asked for was an organizational chart. Who was my boss? Who was I gonna talk to? And that was, like, kind of – they had an organizational chart, but it wasn't quite clear to me.

So, to me, I had – I used to report to the project engineer, which is a – her name was Chantal Berube. So I used to report to her and she used to come and see me when, you know, when things were happening – when things were going, you know – to give me some guidance as to what I had to do. Because, I mean, when you're not sure what you're doing, and you know, you don't have a schedule or you don't have a plan, you kind of go: Well, you know, what am I doing today? (Inaudible) go do this and go do that. So, I send people out to do what they got to do.

And it's hard to schedule workers to go do work when you're not sure where you're gonna send them. You're always trying to – the night before you're trying to think: Tomorrow I'm going to put guys there, I'm going to put guys there, trying to figure out what we're going to do and then, you know, have the okay from the engineer to say: Yes, Larry, this is what we want you to do next. And that's how we proceeded.

But, again, it was difficult because we never had a set of drawings to go off of. So we had to go, like, by the seam of our pants, do what we had to do. I mean, you have to do formwork, you know, and then we did formwork, no clear cut, what they wanted. They said: Well, you got to do a wall from there to there. And so we do, you know – we did what we had to do. But, I mean, there was no plan telling you exactly what they wanted. So it was more or less, you know, by experience, do what you do. So being a superintendent, I don't have – I had input, but mostly it was the foremen that had to do whatever they thought was right.

MS. O'BRIEN: And when you first became aware of the overall schedule or plan – like, how much concrete was intended to be, you know, poured or produced in a day – what was your reaction to that?

MR. CAVALIERE: When I saw the schedule, the initial schedule, in my head, I said it's not doable. It's impossible. I mean, never mind in Labrador, never mind anywhere in the world, whatever – I thought it was 900 metres a day; it was corrected now by you, at 600 metres a day, every day, which is almost impossible to do. I know it is. They did it one time during the project, we reached 20,000 metres in one month, but every other month we never made it.

And every day, that's another thing. Every day, it's impossible. I mean, it's – I worked a lot of big jobs and unless the job is very, very, very big and you're doing a very large quantity of concrete – like an RCC job would be able to do that, roller-compacted concrete like the North Transition Dam. In that situation, yes, but that's not regular formwork, that's cement brought with a dump truck, dumped and rolled. There's very little formwork involved and very little rebar involved. The complexity of Muskrat Falls generation station, powerhouse and spillway, there's a lot of rebar, a lot of it. So, you know – and it takes a lot of time to install rebar.

MS. O'BRIEN: Right.

MR. CAVALIERE: Yeah.

MS. O'BRIEN: And some complex formwork there –

MR. CAVALIERE: Yes. Well –

MS. O'BRIEN: – in certain areas.

MR. CAVALIERE: Yes, it is.

MS. O'BRIEN: Yeah. Okay.

And you're talking about metres a day, but you shorten that up. Most of us would understand, that's cubic metres a day.

MR. CAVALIERE: Cubic metres.

MS. O'BRIEN: And that's how you measure concrete.

MR. CAVALIERE: Yeah, yeah, yeah.

MS. O'BRIEN: That's how people measure the pour of concrete.

MR. CAVALIERE: Yeah.

MS. O'BRIEN: Okay.

And, now, I'd like to get you to talk a little bit about the ICS. So this is the Integrated Cover system, which many people have heard of as the dome.

MR. CAVALIERE: Yeah.

MS. O'BRIEN: And I – you were very involved with that in the early stages. And I'd like you to tell the Commissioner about your experience with the ICS and what your perceptions were of it right when you were first told what it was – it was expected to be accomplished.

MR. CAVALIERE: Yeah. When I got hired by Astaldi that was the – that was my main – that was their main focus. They put me in charge of the powerhouse, and then my main focus was to start building this ICS formwork structure, so for them to install this ICS building on it. This was the (inaudible) month – this was almost the end of – beginning of June. And the size of that dome and the amount of work that had to be done in the little bit of time we had, to me, it was not doable to begin with. And so I was like: Yes, you want me to do this. I mean, I'll do whatever you want. I mean, you're paying me. But to me it was like, it's – it won't – it's not gonna happen. Doesn't work. There's not enough time in the year, or what was left of the year, to finish up all the formwork and concrete and metal structure to be finished by end of – by December. It's impossible.

And I had to put it in an email and sent it out and I guess people didn't like what they heard, you know. I mean, it made common sense, too. I mean, that ICS structure, to me, was a big mistake on the part of Nalcor or Astaldi, whoever it was, whoever decided to do it. To have 10 overhead cranes or more inside of a building, trying to work simultaneously, it's almost not – it almost doesn't make any sense. We have – in the powerhouse now we have four cranes; I think they banged into each already once or twice, so – and this is only four cranes. Imagine if you had 10 going around at the same time. And when that – I don't think it – it wasn't feasible. I mean, that whole system – design system – wasn't ready, was not feasible. It was – it should've been thought out a bit better. Maybe instead of making the whole powerhouse, they should've probably took half of it; then maybe it would've made more sense. But doing the whole powerhouse was a bit too much.

MS. O'BRIEN: Right. And this ICS, the original plan was to have this over all four units of the powerhouse.

MR. CAVALIERE: Yeah, yeah, exactly.

MS. O'BRIEN: Right. And so you're saying if they'd done a smaller –

MR. CAVALIERE: Maybe two, yeah.

MS. O'BRIEN: – cover over two units –

MR. CAVALIERE: Yeah.

MS. O'BRIEN: – might've made more –

MR. CAVALIERE: Maybe it would've been doable, you know, would've been constructible, but the whole thing is too much.

MS. O'BRIEN: And you gave me an example yesterday of just about – in terms of how the design was thought out, in terms of how you were getting – gonna get materials from –

MR. CAVALIERE: Yeah.

MS. O'BRIEN: – the trucks into the building.

MR. CAVALIERE: Yeah.

MS. O'BRIEN: So that might be helpful if you could –

MR. CAVALIERE: Yeah, okay. This –

MS. O'BRIEN: – give us some details on that.

MR. CAVALIERE: This ICS structure was a rectangle, (inaudible) like a rectangle. But as soon as you open the door, you have a five-metre drop on the, let's say, on the downstream side. On the upstream side, you got the same thing: you open up the door and you got a five-metre drop. On their design they had no way to bring the material from outside to inside the building. They didn't – they had no crane; they had – well, they had an opening. I don't remember the dimension of the opening, but it wasn't open.

And I asked the engineer, I said, Chantal, I go: How are they gonna get material in there? It's nice to say we got a building; how are they gonna get the material in? And we looked at each other and said: Yeah, we could figure a way for how to do it, but it's not on the drawing. It wasn't thought of before. And if you're in Labrador, in the wintertime, and you open up the door, which is, let's say – where ours were 16 feet by 16 feet high. Let's say we would've made a bigger door because don't forget the rebar and all this stuff is very long. They're not 15 – they're not 5 metres long, the rebar is eight, nine metres long. To get it through a five-foot opening it's not going to be easy.

So you got to open the door all the way. And minus 50 outside and when you open the door, you're going to cool off that building in a matter of minutes. You're going to – it's not going to be easy to unload a tractor trailer with a crane or whatever system they want to figure it out to bring it inside the building. And then – and, you know, it takes an hour – it takes half an hour. You have the door open for half an hour. The size of that building to heat – would have lost all your heat in a matter of no time.

So it would have been, like, you know – it wasn't thought of, I mean, at all.

MS. O'BRIEN: So what you're – what I understand, right, you're saying is that, look, this was something was noticed really on site; it could have been – you could have found a workaround for it. Like most problems, if you put your mind –

MR. CAVALIERE: Yeah, you'll –

MS. O'BRIEN: – to it, you'll find –

MR. CAVALIERE: – find the problem; just it had to be thought of. Like, there – being in Labrador, being in cold weather, you would have to make, like, a temporary garage outside, like a – where a tractor trailer would drive in; you'd close the door and heat it. And then you would open the other door inside the ICS and then you would be able to unload your truck somehow. And then you would contain your heat because, don't forget, I mean, heat is – it's expensive to do and it's easy to lose. I mean if you open the door, you're done and then you got to bring the heat up again.

You know, so it's like – it's – first thing was a very big dome, and I don't think they even thought of how they're going to heat all this big area because it's – I mean, to me it was – from the floor all the way to the top it must have been at least a hundred and – I'd say a hundred – no, 30 metres, a hundred feet up.

MS. O'BRIEN: Yeah, okay.

MR. CAVALIERE: So it was a big area to cover.

MS. O'BRIEN: So you can find these workarounds, but I suppose that takes time and that takes money.

MR. CAVALIERE: Exactly.

MS. O'BRIEN: And it can affect your schedule and your plan and –

MR. CAVALIERE: Yeah, well –

MS. O'BRIEN: Yeah.

MR. CAVALIERE: – I mean the time and effort that was wasted, to me, on the ICS building – if it would have been – that time and effort would have put in the construction of the powerhouse and the spillway, we wouldn't probably be in this situation we are now. We would at least – to me, we would have saved at least a year on the schedule, maybe, and even more – just the time and effort that was wasted doing the ICS building which at the end, they

put it up and ended up taking it down – never even using it. I think they used – yeah, they used some of the cranes for a while, but I mean, they put it up and took it down.

In the time they were taking it – they were removing it, you know (inaudible) could work in meantime because the size of the beams they were taking – removing were really big. So we couldn't – we – people couldn't work underneath that section of the powerhouse, you had to move over to the other side.

MS. O'BRIEN: And I'd like to go to you, Mr. White, while we're on the topic of the ICS because I know that even though one might not think immediately that in the work you're – you were doing, which was on the electrical side, one might not think that the dome and what went on with the dome or the ICS would have affected your work, but I understand it did. And I'd like you to explain to the Commissioner how that even interrupted your planned schedule of work.

MR. WHITE: Okay.

As the subcontractor, of course, once all the components were put in place, our job is to power them up and make them work. As Larry stated, the dome had a total of 14 cranes; only seven got installed. But of course, there was the lighting component, the heating component. And in the meantime, they still had to keep the water out of the powerhouse and keep other machinery going for the different trades.

And, of course, while they were constructing the dome, we didn't have access to the dome because of – they were lifting structural steel, or they were insulating the roof, or whatever the contractor that was doing the dome was doing, we had to step aside. So we'd plan for Tuesday and Wednesday – the electricians to go in the dome and do some of their work. Well, lo and behold, when Tuesday morning come: Sorry, b'ys, we got to get the dome constructed before you can go in there.

So, it was just continuous. Like, we'd be ready to go to work on certain days of the week or nights, depending – night shift or day shift. And it was just continual. We had very, very limited access to do the work that was required. And they wanted it done right away. I mean, you know, they wanted that dome functional. But there was no way we could make that functional while the structure contractor was working on it. It became a – pretty much of a safety issue. Like, you cannot work when there's people flying steel over your head.

MS. O'BRIEN: Okay. Thank you.

I'm gonna stay on the – some of the Astaldi topics. We've kind of jumped a little bit ahead on the ICS. I'm gonna come back now to the mobilization of Astaldi.

So, it's been entered, Commissioner, as P-02139, and it's at tab 1 of your binder, but this is the limited notice to proceed. So, there will be more evidence to this, but the actual contract wasn't awarded to Astaldi until the time of financial close. But in order to be – to keep the schedule, Nalcor issued a limited notice to proceed to Astaldi on September 24, 2013. And that's what's in the book in front of you.

This is fairly common in – certainly in the construction industry – to get contractors going with a limited notice to proceed. We'll get more evidence on this later, but it set out some of the early work that was – Astaldi was expected to perform prior to the contract being signed in later November.

I don't need to go to that document in any detail; I just wanted to draw it to the Commissioner's attention. But I'm gonna go back to you, Mr. Cavaliere.

Can you tell us what were those, you know, early days like with Astaldi? When were they, you know, first mobilized to site? What were the conditions like? How did that early work go?

MR. CAVALIERE: I – when I found out that Astaldi got –

MS. O'BRIEN: Sorry, I'm just gonna get you to take the mic. Thank you.

MR. CAVALIERE: When I found out that Astaldi had got the contract, I mean, I think it was in November or December and they started to mobilize, I think it was just before Christmas. But I'm not sure about before – because I

remember in January, they were mobilizing pretty much and – you know, and to mobilize a size of that – a contract of that size, they needed a, I'd say, between six and eight months of plan – of mobilizing trailers and procurement and material and …

And back then, I was working for Nalcor. Nalcor seemed to be pushing – when is Astaldi going to get going? You know, when they're going to start this ICS building? Well, you know what I mean, that's – I think that was part of their plan to begin with, to start with the ICS building and – but I mean, to me – and Nalcor was pushing Astaldi to start doing some production while Astaldi was still trying to get settled in.

And, I mean, you got to give the person a chance, the contractors, a chance to settle in. He got to mobilize his people and get all the trailers up and, you know, get ready for it and get the material in, get the equipment in. And that was a big – to me was a big – like, you know: Why push when – why are you trying to get them to start so fast? I mean, you got to give them a chance to get ready before they can start – you know, before you can start working.

And I also know that Astaldi back then hired a guy from Quebec, his name was Mr. Kesler. He was an experienced – I guess would be a superintendent or a manager. He had built six or seven hydro dams in Quebec. It was an older gentleman, about 70 years old I think.

I met him a couple of times on the plane and we got talking a bit. And he was the main guy that Astaldi, I guess, was depending on to do the job because he had his own group of people, he had – I think he had seven or eight key guys he was gonna – that he brought from his other jobs that which, I guess, there was like this is his team. And the next thing I know, I find out that he was – he got sick so he never really – he started the job, but never really started – he never really got to the job site. I think in January – I didn't see him anymore after, he was gone. He got sick and I never heard from him again.

I guess Astaldi then got caught with no plan B. They had all their eggs in one basket with Mr. Kesler. And when the minute he didn't – that something happened to him, he got sick, they had no plan B, they had nobody to give – to hand over the reins to somebody else to continue. And that's where Astaldi started having a lot of manager problems. I mean, they – if I'm not mistaken, I thought it was four. Ed told me there was seven project managers in a year. So, evidently, they were really peddling trying to fill in this position which was not an easy position to fill in.

MS. O'BRIEN: And Mr. Kesler's first name was Ken?

MR. CAVALIERE: Yeah. Ken, yes.

MS. O'BRIEN: All right.

Maybe I'll go to you, Mr. Knox, and get you to give us your views on where we're looking at sort of, that early mobilization time, early days for the Astaldi work. What were your impressions?

MR. E. KNOX: Okay, I guess I'll start. You know, I was a little late coming in with Astaldi; I joined them in 2014. But on the early phase of the work I'll just do a footnote on that. When IKC was doing the bulk excavation and civil works, you know, I guess we were really prepared to just flip right in, into the other contract for the powerhouse and the spillway.

And, you know, at that time when, you know, when we were bidding this work, you know, tendering this work, we were feeling kind of confident that, you know, we would get this work simply because we were already mobilized on the job site and we were willing to, you know – and able to fast-track the actual spillway with the early concrete works and the spillway. And that would've gave the project a nice little leap start, I would say, okay?

But, unfortunately, that did not happen and Astaldi was awarded the job. And as you can see from the date, you know, it was the 24th of September in 2013. So IKC actually finished their work in 2012. So, again, the gap there was obviously some time that could have been made up in the project, right –

MS. O'BRIEN: Finish their work in 2013 I believe. The bulk excavation was –

MR. E. KNOX: Bulk excavation, the majority of the work was finished in 2012 or –

MS. O'BRIEN: 2013 I think.

MR. E. KNOX: Oh, yeah, 2013, yeah.

MS. O'BRIEN: 2013.

MR. E. KNOX: Yes.

MS. O'BRIEN: Towards the end of 2013?

MR. E. KNOX: Towards the end of 2013, sorry.

MS. O'BRIEN: Yeah.

MR. E. KNOX: Yes.

MS. O'BRIEN: Yeah.

MR. E. KNOX: And so – but there was the opportunity there for early startup for IKC.

MS. O'BRIEN: Okay.

MR. E. KNOX: Okay?

Now, getting back to, I guess, the Astaldi scenario, when I first joined Astaldi back in 2014, first when I came on site I could see the lack of planning, the disorganization, you know, within the management realm themselves and the actual manpower loading, you know. For the amount of work – work fronts that was ongoing at the time, the loading seemed excessive to me. And this was pretty relevant in the early, I guess, utilization of the labour max, okay, and expenditures of the budget early on in the project.

Again, you know, from my experience I walked in and it was clearly evident to see that the management was not prepared for this type of work, you know, with the unions – how unions operate in Canada, okay, and Astaldi not used to working in a unionized environment and the climate itself – Astaldi not used to this type of work in northern climates.

And Astaldi's record, you know, a lot of megaprojects in third world countries, you know, a lot of megaprojects in third world countries, you know, Europe and whatever. So I think a lot of that, you know, you see in the environment and both the physical environment as well as the labour environment attributed to a lot of Astaldi's early problems and a lack of experience on the part of the management team.

MS. O'BRIEN: Okay.

And so, also – so there was – would you agree there was a high number of turnover of some of their key positions during that period?

MR. E. KNOX: Exactly, and I think the last project manager with Astaldi was number eight. So still, there was a total of eight project managers on that project, which was significant, you know. And for that amount of turnover for that senior position, it might must be significant for that scope of work.

MS. O'BRIEN: Okay.

So looking at this period, and we'll say talk about the 2014 year, which would have been the first, you know, full year of Astaldi's work. You know, they were mobilizing or got that limited notice to proceed at the end of 2013. You talked a bit about the labour resources and the amount of work. So are you saying there was more people than there was work to be done, is that the idea?

MR. E. KNOX: Yes, to me, if you looked at the work fronts that were available and the number of labour that was on-site, it was excessive. And as well, they limited tools that the workers who were on-site had to do the work. And I'll just quote I guess one instance. When you're preparing foundations for reception of concrete, okay – when we're out there actually using toilet brushes and windshield scrapers, okay, to clean rock? So to me, you know, that was a lack of planning obviously, and you know, not the right tools for the job. And these are the things that I witnessed, you know, when I went on that job site at that time.

MS. O'BRIEN: Okay.

And just to give people an idea of this, once all the bulk excavation has been done – so a lot of rock has been blasted out of the area, before – then Astaldi – so that was done by the first

contractor, the bulk excavation contractor. Before Astaldi starts pouring concrete, you really have to clean up the surface of that rock, don't you? So get rid of any loose pieces and all that so when you start pouring your concrete you get good adherence and a good stable base to start building up on, is that (inaudible).

MR. E. KNOX: Exactly, and a lot of cases refer to it as dental concrete. So you're cleaning up the surface, right, before you place the other concrete.

MS. O'BRIEN: Okay.

All right, and I'm just going to go back to you, Mr. Cavaliere. Was that consistent with your experience during that period in terms of number of people there working versus amount of work to be done –

MR. CAVALIERE: Yes.

MS. O'BRIEN: – and availability of tools and such?

MR. CAVALIERE: Well the availability of tools was a major issue throughout the project. I mean, you know, it's been an ongoing thing. Tools are – or you can't find them, or they don't have them. Whatever it is, it's – I don't know where they all go but anyway. They say they buy them, but we don't get them. I don't know. Whatever it is, it is. But …

The manpower thing is – to me is critical because at the beginning, the first six, seven months of that project, we didn't have any concrete. The first poured concrete, if I'm not mistaken, was in June of '14, okay? And I think the manpower of June of '14 – I'm not sure about the – I don't know about the numbers but I guarantee there was at least 1,000 workers there from Astaldi. If not 1,000, 900. We didn't pour one ounce of concrete yet.

So to me, yes, you can have people there; what are they doing? Making huts and making roofs for trailers, making walkways for trailers, moving trailers around, you know. Some of them were working on the ICS building, yes. But the amount of people working there for the amount of work – but 'til we don't have concrete – that whole job is concrete – until you don't have concrete – the batch plant was started – the batch plant started – fabrication of the batch plant in January of '14. That's when Béton Provincial, which is Lab Ready Mix, got the – was awarded or got the contract to supply concrete for Muskrat Falls.

And they had to build this plant in minus 50, which took, you know, quite a bit of time I think. And then the only time the plant got going, that the first concrete was approved to pour, I think was in June. I mean – because you got to do a sample test – samples of concrete, different types. And you got to do – you got to mix it and you got to, like, test it. And 30 days later, you got the result if it's good or not. You can do results in seven days, but the real –

UNIDENTIFIED MALE SPEAKER: Yeah.

MR. CAVALIERE: – the overall of it is 30 days. And you only get the okay that it's a good mix in 30 days.

So – and let's say you get the cement on, let's say, the 15th of May, you can only really use it on the 15th of June. And let's say that's when you started doing concrete on the job site, so from December of January of '14 'til June of '15 or '14, there wasn't a whole lot of concrete going on. None.

There was a lot of prep work being done. They had started – we had started doing modules for concrete, started putting up formwork, rebar, in anticipation that we can get concrete. So that there – you don't do that in January, February in March in Labrador. It's too cold. They started that around April. April, May.

And then, you know, as a – and then they started planning a little bit more and then, you know, say, oh, we're gonna do this section, that section, that section, put rebar here. And they started – you could see that the progress was starting to get going. But, I mean, the, like, the lack of planning was what the main thing. And nobody really knew which segment they were gonna go first. They had a plan there. I worked on it, too, with Chantal; we had figured out, you know – I was in charge of the powerhouse, but she asked, Larry, what do you think about (inaudible) how can we do it? We play like a tic-tac-toe game. That's what we did. We separated

in six different sections. And we ended up saying we were gonna pour this one, this one, this one, then we're gonna wait a couple of days, then we're gonna pour this one and that one. And at the end, we say that was the middle one at the end.

So we – I helped her out – well, she asked me for my opinion, if I can help – not help her out, but see if it was constructible, the sequence we were doing. Even though it wasn't my section to do – I was in charge of the powerhouse – I helped her out, and we came out with some kind of plan, and then that's what they executed with in the spillway. And if I'm not mistaken, that's what it was.

And that's how (inaudible), but first cement was in June. So anything done before that – prep work, cleaning – yes, all that could be done. But, again, you don't do that in April in Labrador. Everything's frozen. Nighttime it goes to minus 10, so you got to wash it in that water – that's what dental work is – cleaning out with water, air hoses, sucking up all the loose rock and dirt until – so it's –

MS. O'BRIEN: Okay.

MR. CAVALIERE: – it's a – you don't do that in the middle of winter, unless you're covered. That's what – you know, you're covered and heated, then you can do it. But there – that place wasn't covered and it wasn't heated, so.

MS. O'BRIEN: I'd like to go to you now, Mr. White, and get your impression of those, you know, those – like, 2014, early days setup. How – from your perspective, what was the site organization and planning like?

MR. WHITE: I think Larry pretty well covered a lot when it come to the disorganization. When Astaldi first came on site, I was still working with IKC-ONE. And I believe it was there on the 16th of December, they came in with a small generator and a trailer behind the pickup, and they had permission from my supervisor at IKC for me to go and hook up that generator.

When I left for Christmas, that's all the infrastructure was there. I went back – I think it was around the 10th or 11th of January when I got called to go back – and there was maybe eight or 10 trailers on site then in various stages of getting levelled up or getting ready for it to be hooked up.

But I remember the conversation we had the first day back, and they said: We have 300 workers coming in about six days. You need to have this ready for us. And I said, I don't think it's doable. And they said, well, do it, you know? And it was like that from day one. You go in in the morning – that's when you get your direction: we need this by 12 o'clock; we need this by 5 o'clock; we need this by tomorrow. How are we gonna do it? Well, that's your job, so …

Basically, we operated not knowing what our expectations were the next day, and it was quite frustrating at times.

MS. O'BRIEN: And it might not be – you know, for people who haven't been on the site, I mean, the site is a remote site, and even the camp is a little bit – and we'll talk about the camp in a few minutes – but the camp where workers stay is a little bit removed from the site itself, obviously.

But even on the site, in those early days, you need trailers for people to go in and have their lunch breaks; you need trailers set up at offices for the contractors to be, you know, to be doing their office work. I mean, there's a certain amount of paperwork and office work that has to be done on site. You have to have places for people to get in and meet and people to get in and out of their clothes, people to have their lunches. You need places – you need bathrooms on site – all that has to happen. You're basically building, like, a little – a mini-town – a mini-temporary town right on the site. Is that fair to say?

MR. WHITE: That's very fair to say. And over my years of travelling, and especially with the oil and gas sector, when we show up on a job to start work, a lot of the infrastructure is already in place when it comes to work facilities, change rooms for the workers, trailers for material, your lunch trailers or whatever. There's designated areas where those pieces of the puzzle are put in place, and they're basically left there until the job is over.

In Muskrat Falls, unfortunately, that wasn't the case. You may go to work 8 o'clock in the morning and walk out of your lunchroom, and when you were going to your lunch break at 12 o'clock, you may have to go look for your lunchroom because it would be moved somewhere else, and that was constant.

MS. O'BRIEN: Yeah, you gave me some explanation of that, like, moving around of temporary trailers. Can you give us a little more on that, please?

MR. WHITE: There were various reasons given for it. One of the ones that stick in my mind was that that particular part of the project, that area was slated for a contract down the road or there was another contractor coming in that needed it for a lay-down area or for their infrastructure, for their people or whatever. I guess the big reason, from Astaldi's perspective, they wanted the lunchrooms as close to the work face as possible.

UNIDENTIFIED MALE SPEAKER: Mmm.

MR. WHITE: So you would put the lunch trailers right next to the work face to cut down on travel time for breaks and lunches and basically increase your productivity, you know, for a certain number of hours a day.

The downside of that is that after a few days in most cases, that they needed that area to do, as Ed said, dental work or whatever. So you'd move your trailer again to make room for the workforce to do their work. So it was constantly moving of the units needed for the workers to do their work: you know, their work trailers, their change rooms, their lunchrooms, their storage trailers, and equipment trailers.

MS. O'BRIEN: Thank you.

The – Mr. Knox, I'll just go to you. Just generally, to your knowledge, what progress did Astaldi make in that 2014 year?

MR. E. KNOX: Not a lot. And to go back to what the guys explained as well, a lot of time was wasted, you know, simply because of poor planning. And not having the actual expertise, you know, in the field as supervisors, as superintendents and what have you. And, you know, this was evident not only in 2014 but right throughout the project. So, you know, again, one of the biggest factors there was the lack of planning.

And when we come to the facilities as well, as some of the guys noted – you know, I worked on a lot of large projects and, you know, the facilities are there. They're actually there to suit the actual work, you know. And, yes, you have to have the proper infrastructures in place to support that work. And they weren't at Muskrat and you're always chasing your tails pretty much every day.

MS. O'BRIEN: Okay.

Mr. Cavaliere, in terms of that first year, would you also agree little work done, or do you have a different view of what production was actually – ?

MR. CAVALIERE: Well, definitely production was minimal. I mean, I never had access to the numbers of man-hours and – that was done for the amount of concrete that was poured. But I can tell you from what I can see must be astronomical in the price the money that was spent that first year, '14, between ICS building and they had to try to put up another structure in the spillway, which I don't know.

UNIDENTIFIED MALE SPEAKER: Mmm.

MR. CAVALIERE: Anyway, they tried to do something but it didn't work out. They took it apart. So that was another, you know.

And coming back to what Ed was saying about supervision, again, a lot of the supervision that was done by – hired by Astaldi was name hired. It didn't go through the union.

MS. O'BRIEN: Okay.

MR. CAVALIERE: And Astaldi hand-picked the people they put as supervisors.

MS. O'BRIEN: Okay. And I'm going to come back in a little while –

MR. CAVALIERE: You're going to come back to that?

MS. O'BRIEN: – later to the supervisory labour –

MR. CAVALIERE: Yeah, yeah, yeah.

MS. O'BRIEN: – in some more detail.

MR. CAVALIERE: Yeah.

MS. O'BRIEN: Thank you.

You just mentioned the structure on the spillway –

MR. CAVALIERE: Yeah, they had put some kind of a dome –

MR. WHITE: Nordic structure.

MR. CAVALIERE: Eh?

MR. WHITE: Nordic structure.

MR. CAVALIERE: Yeah, Nordic structure. One of those prefabricated, like a dome, like the big ones you see.

MS. O'BRIEN: Yes.

MR. CAVALIERE: It was pretty big, but it took them forever to get it installed. And when the time – by the time it was finished it was already the month of May. So they ended up taking it down –

MR. E. KNOX: Mm-hmm.

MR. CAVALIERE: – and started working. Because once the month of May came around the weather started getting good, so then they started doing this cleaning up the stone and started to implement that plan.

You remember I was telling you before that tic-tac-toe thing? That's – they started with that section of the spillway, which was a lot smaller than the powerhouse, but I mean it's not as – it's labour intensive but it's a really concentrated area. The spillway – between the two spillways it's only like four metres where the water passes – where the water goes through. So there's like a – there's a high structure, every five metres you got a structure of a hundred feet, 30 metres high.

MS. O'BRIEN: Okay. And we're going to hear a little more evidence on this Norsemen – or Nordic structure.

MR. CAVALIERE: Yeah.

MS. O'BRIEN: And it is another type of a covering, like a big white –

MR. CAVALIERE: Yeah.

MS. O'BRIEN: – temporary – you know, most people have –

MR. CAVALIERE: Dome.

MS. O'BRIEN: – probably seen them in places, you know, these big – like a more – really like a dome.

MR. CAVALIERE: Yeah.

MS. O'BRIEN: And they had a plan to use that, got it installed, or most of the way installed and then, ultimately, took it down.

MR. CAVALIERE: Yeah.

MS. O'BRIEN: Yeah.

MR. CAVALIERE: The weather got nice.

MS. O'BRIEN: Yeah, okay. Thank you.

And one more piece I want to do on Muskrat Falls site before I switch and start talking to Mr. Snook about some items, but I want to talk a little bit about the camp and the camp set-up.

So, Mr. White, you were there very early on in the bulk excavation contract. Can you just tell us about, you know, where you stayed and what the progress of the camps were and how that all worked?

MR. WHITE: Okay.

First when I went up with IKC-ONE, of course, there was no camp; all the workforce was basically based out of Goose Bay. So we would drive back and forth to the site on a daily basis. And our schedule was, I believe, 14 days in and seven days out, and sometimes it was 20 days in

and eight days out or whatever. So we basically stayed in Goose Bay.

When I went back in January, it was still Goose Bay. And then they had the temporary camp put in place, and I believe it was in April or May we moved into the temporary camp. I believe they brought it in from a construction site – Manitoba or some other construction site. It was a used camp.

So I stayed in the camp for several months. And, of course, when the new facility was ready, we moved into the new facility. And I would like to say a positive note on the camp facility, as a construction worker. It was outstanding. I really, really thought that the camp that – the permanent camp that Nalcor put in for the workers was excellent.

MS. O'BRIEN: Good, comfortable accommodations and – facilities there, too, recreation facilities, gym facilities.

MR. WHITE: Everything, yeah. It's –

MS. O'BRIEN: Good –

MR. WHITE: Well, I'm not the younger generation, so I'm not much into exercise or anything like that, but anything you needed was in the camp. Yeah, it was quite comfortable.

MS. O'BRIEN: And the food was good.

MR. WHITE: The food was excellent.

MS. O'BRIEN: Good.

Okay, so in the those early days – so early on, though, that main camp, that big camp – and the Commissioner has done a site visit so he's seen that camp – that wasn't ready in the – there was no camp there in the early days. So you were being bused back and forth from Goose Bay. But – and I understand the road at that point wasn't the road that the Commissioner would have driven on, on his site trip because the road was still being constructed. Is that right?

MR. WHITE: Most of the workers were being bused back and forth. My company, Iskueteu, provided me with a pickup truck so I drove back and forth. I never did take the bus while I was in – while I was there, unless it was fly-out day and you just passed the pickup truck over to the other supervisor and then you jumped on the bus and went out. But the roads left a lot to be desired. Yes, it was quite a battle to get to and from the site, especially during the breakup in the spring and freeze up in the fall. There was some pretty large craters.

MS. O'BRIEN: A very bumpy road until – well, because they were still working on it.

MR. WHITE: That's right.

MS. O'BRIEN: That's the idea. Okay.

I know, Mr. Knox, you were there and you also state in the temporary camp that I think they might have brought in from – was it Wuskwatim, or …?

MR. E. KNOX: Yeah, Wuskwatim.

No, I did not stay in that camp. I was out in town but, yes, that camp came from Wuskwatim.

MS. O'BRIEN: Okay, all right, thank you.

Okay, I'm going to talk a little bit now to you, Mr. Snook. So I'm going to get you to tilt the microphone towards you, please. So we've – we were talking a fair bit about schedule there and planning. And I'd like you to give some comment to the Commissioner about, you know, in terms of the work that you do, how important is it that you have a known and reasonable schedule?

MR. SNOOK: Well, for the first portion of my position with Nalcor as an inspection coordinator for the off-site surveillance, it is extremely important to know when fabrication will start, when it will finish for multiple reasons. One is so that you can plan at least two to three months ahead prior to the start of any manufacturing so that you are able to go out and secure the best and the most economical inspectors that you can. When you ask last minute, you get the bottom of the barrel, so I would always try to go out at least two to three months in advance. Three was the number to which I would always try to hit.

When you're absent, they – even if you have a tentative date – so say if I was – I was trying to source an inspector right now for June of 2019, I would tell the TPI agency – the third party inspection agency – that it is scheduled for June, it may shift by a week or two. I will advise you a month before and then again two weeks before.

When you don't have the schedule – or when you don't have a firm schedule – then you can't plan it. So you can't plan for the start, nor can you plan for the finish. Certain portions of the project – and, again, I need to make this known though, as well, is that – so (inaudible) the SOBI piece, for C1, C3 and C4, they all operated completely differently. It was like you were working on three projects at the same time. There was no consistency between either portion.

Some of the quality coordinators on to a particular portion of the project, no. They would (inaudible) for the information because they were used to it. They had that background, they had the knowledge. For the package engineers, same experience there as well. They knew that if you didn't plan it out early it was going to be an uphill battle. So it depended on which portion of the project you were working with at that time.

But, again, schedules change. You'll never have any construction project – anything, even if it's – you're going to have your kitchen changed, it will alter, there's no doubt about it, but you plan for that change. You open up the lines of communication between yourself and the vendor and the project team as a whole. However, there were times there were the – to where the communication was absent or it just wasn't being shared properly, we'll say.

One of the ones that comes to mind is for the C1 for the turbines there, for example. There was a massive effort put in to the turbines. We had put a lot of resources into locating third party inspectors. We had a – we had a quality coordinator hired and from North America and then stationed in China full time.

MS. O'BRIEN: Okay, just to get some of that – I mean these turbines are obviously – there's four big turbines going into this plant. They're massive –

MR. SNOOK: Yes, Ma'am.

MS. O'BRIEN: – pieces of equipment.

MR. SNOOK: They're the heart.

MS. O'BRIEN: They were being manufactured in China.

MR. SNOOK: Yes, Ma'am.

MS. O'BRIEN: Okay.

MR. SNOOK: Yes, yeah.

So for the castings – were going to be done in China, the machining of the turbines also done in China. Whatever scope could be done in China was being done in China because that's where the vendor had selected to do the work. For the facility, I assume, had been audited, approved and they were given that go-ahead.

However, again, it's the heart of a power station. If that turbine goes down we – you're not going to make any money, it's as simple as that. So it needs a special amount of oversight there. So for the turbines – that package was going on for quite some time and we were experiencing the on-site delays already. With the pour concrete – was stopped. For the domes that wasn't working out. We needed, like, a second batch plant so we were trying to work with that. Astaldi were having their difficulties, we were having ours, so the schedule was already blown, right?

When were you supposed to start pouring concrete at?

MR. E. KNOX: Early 2014.

MR. SNOOK: There you go.

MR. E. KNOX: Yeah.

MR. SNOOK: So you have an early notice to proceed in September of 2013. That's the early advance money to start the engineering – to start the procurement for your trailers and such. You're not going – you may – if you have a crackerjack team you might be able to start pouring concrete April, May but it's a stretch –

UNIDENTIFIED MALE SPEAKER: (Inaudible.)

MR. SNOOK: But you'll need to know what those conditions are well up front.

Now, when you know – so by the time that hit, everyone knew that, yeah, we're going to be behind. So –

MS. O'BRIEN: In 2014 you're saying, right?

MR. SNOOK: Yes.

MS. O'BRIEN: Yeah.

MR. SNOOK: Yes. So once you know that you're behind in the start of the pour of your concrete, you know that your powerhouse is going to be behind. You know that you're not going to have a home for those turbines. I don't know if a comparison was done as to, okay, this was the original date that we had provided our supplier of when we need those turbines to be shipped. But as soon as it starts to change on site, that conversation has to be had because then you're going to incur a storage fee and also preservation requirements there as well. So the on-site delays continued, the fabrication end started showing how it was going.

Now, one of our main engineering and project deliverables would be the documentation. You can build whatever you want, but if you don't have the paper for it, you're going to have to redo it. Because if you can't prove it, you didn't do it at the end of the day. That's how the industries look at this sort of thing.

So for the turbines themselves, they were being manufactured, finished, prepped for shipment and shipped as quick as possible. But they were being shipped without the sign-off of the final (inaudible) packages. I don't know if they still had the NCRs done yet.

MS. O'BRIEN: Okay, you're going to need to explain what an NCR is.

MR. SNOOK: Oh, sure thing, no problem. So for an NCR, it is a non-conformance report and they're common – very, very common. If you don't have a non-conformance or an NCR throughout the scope of any work, you're not doing anything.

I'm more worried when a vendor says they have no NCRs than when they tell me, yes, we've got 20. Because that shows that they're doing their checks, they're doing their balances, they are capturing what went wrong and they're working to address it.

MS. O'BRIEN: So a non-conformance report – so this is a document that's completed when the work being done doesn't conform to the actual specification or the requirements.

MR. SNOOK: Yes, Ma'am.

MS. O'BRIEN: You document that, and then that NCR documentation would also include what you're doing to remedy the problem.

MR. SNOOK: Yes.

MS. O'BRIEN: Or it may be something doesn't conform, but –

MR. SNOOK: Yeah.

MS. O'BRIEN: – it's still fine and someone signs off and says it's not –

MR. SNOOK: Agreed.

MS. O'BRIEN: – exactly as planned, but it'll still work –

MR. SNOOK: Exactly.

MS. O'BRIEN: – and that's good. So it's just your paper documentation of places where there's been deviations and how they were ultimately dealt with.

MR. SNOOK: Exactly.

MS. O'BRIEN: Okay.

MR. SNOOK: What I tell all of my suppliers, for example – and for my on-site contractors – is I expect non-conformances. They are going to happen, don't hide them from me. If you have a problem, I have a problem. Tell me about it up front so then we can work together on it. If you

don't, I'll dig and then you may not like what I find, right?

So that opens up the lines of communications. But you show the vendor – or for the on-site contractor – that you're there to work with them, but also let them know that at the end of the day they're still responsible.

MS. O'BRIEN: Okay.

MR. SNOOK: Right? So they're not going to be off the hook.

So for the shipment of the – so to just tie it back to the schedule – is that we knew we were late. Why release? Especially if we don't have the turn over documents completed and signed off. Because in any industry, once it leaves that factory, it's your problem. Good luck trying to get that documentation.

If you go buy a car, if that car is not the right colour when you drive it away, good luck trying to get that car swapped out, right? Same sort of comparison, I guess, on a much lower dollar value.

MS. O'BRIEN: Right.

MR. SNOOK: But, of course – but that's how we as quality assurance try to ensure that the requirements are met. And, again, to go back to your statement there as well, is that there are a lot of occasions to where you may not have it exactly perfect but is it fit for purpose and does the owner know this and do they agree to that? And if they do, you sign off, you move on. There may be an exchange of funds or schedules and so on and so forth, but that's par for the course, that's industry standard.

But if you don't know and then if it ships and then you find that there is a major flaw, what are you gonna do with it then?

MS. O'BRIEN: Okay.

So, just to get a bit of understanding around –

MR. SNOOK: Yes, Ma'am.

MS. O'BRIEN: – these turbines. So obviously these are what's known in the industry as long lead items –

MR. SNOOK: Yes.

MS. O'BRIEN: – which means you don't just – you need a turbine, you don't just go and call someone up and say: Can you just send me over a turbine next week? I mean, these are very, very sophisticated, specially built pieces of equipment. You have –

MR. SNOOK: Labour-intensive as well.

MS. O'BRIEN: – to order them – they're labour intensive, they have to be ordered very far in advance.

MR. SNOOK: Yes, Ma'am.

MS. O'BRIEN: So these are – and when we get to look at the contracts, the contracts for the turbines and generators is one of the first contracts issued on this project and that's because of this long lead.

MR. SNOOK: Yes.

MS. O'BRIEN: So, ultimately, that would have come with a delivery date. And what I'm hearing from you is two things and I just wanna make sure I'm getting the evidence clearly.

MR. SNOOK: Sure.

MS. O'BRIEN: One is that those turbines were shipped over to the Muskrat Falls site without all the proper release and paperwork in place. Is that what you're saying?

MR. SNOOK: They were shipped without having the final documentation submitted, approved and accepted prior to it getting on a boat.

MS. O'BRIEN: Okay.

MR. SNOOK: And –

MS. O'BRIEN: And this is something – you worked on this at this at that time. You're very –

MR. SNOOK: Yes.

MS. O'BRIEN: – aware of what went on. Okay.

MR. SNOOK: Yes.

So, for my question back to – one of the team members at the time was: Why are we shipping these? Why are we gonna sign this off? What are we gonna do with them when we get them? Where –

MS. O'BRIEN: And what was the answer?

MR. SNOOK: – are they gonna go, right? Because we had no storage area for them and we didn't need them, right? And we also didn't have all of the docs. So the onus is still with the contractor – as I understood that contract, anyway, that they – that for that documentation had to be submitted and accepted. Not just submitted.

There were other portions of the project where that debate came in with regards to the contract is that – really, like, sometimes, like, you have to be a bit of a lawyer there, right, yourself because a – some vendors and – for some contractors – will pick that purchase order and contract apart and find any loophole that they absolutely can.

If it said here – it says submit, not submit and accept, and I actually had this conversation with vendors and with project management team members onto other parts of the project. I said: Are we really gonna give 'em all the money right now? Said: Well, it says submit, not submit and accept.

MS. O'BRIEN: Okay, so let's go into the turbines.

You asked the question: Why are we taking these now? We don't have the right paperwork. We don't need them right now; we don't have anywhere to store them.

MR. SNOOK: Yeah.

MS. O'BRIEN: You asked that question.

What was the answer you got?

MR. SNOOK: They wanna ship 'em, we can't stop 'em.

UNIDENTIFIED MALE SPEAKER: (Inaudible.)

MR. SNOOK: I said: Well, if they haven't given us what they're supposed to, as per the contract, we can't. Why would we put pen to paper?

MS. O'BRIEN: Okay.

And ultimately, though, the turbines came to site –

MR. SNOOK: Yes.

MS. O'BRIEN: – and what – where were they put? How were they stored?

MR. SNOOK: I think it was a bit of a hodgepodge at first. We had to pay – if I remember correctly, we had to pay the contractor to store them for us. And it was a significant bill, significant bill. I'm not sure exactly what the number was, but for some reason I got a million dollars a month in my head, right?

MS. O'BRIEN: Okay.

MR. SNOOK: But it was a significant bill.

MS. O'BRIEN: Okay.

MR. SNOOK: The other issue with the early shipment there, as well, is that we were provided with a presentation for the preservation that would be applied to the machine parts – the coating that was gonna be applied to the machine surfaces. Again –

MS. O'BRIEN: This is to keep them from rusting or deteriorating. Okay.

MR. SNOOK: Right, again, 'cause these are extremely, extremely small-type tolerances. If you have rust or if you have damage on them, it's not like you can take them to any machine shop then to be repaired. This is gonna be a major (inaudible).

But again, and they were shipped, and for the coating that was applied, I don't believe it happened to all of the components, however there were components that were coated and the

coating failed because it wasn't designed for extremely cold temperatures. So –

MS. O'BRIEN: To be stored that long (inaudible).

MR. SNOOK: Well, no, it just wasn't designed for the cold Labrador temperatures. So, it actually became brittle and it fell off, and then the services had to be remediated, but then that's on our dime because we approved it. We approved it to ship, we were taking care of the storage, we approved that preservation coating; it happened under our watch.

MS. O'BRIEN: Okay.

And we're going to come – get – have more evidence, obviously –

MR. SNOOK: Yeah.

MS. O'BRIEN: – as the Inquiry continues on that topic.

MR. SNOOK: But now, again, that's my understanding of it there as well.

MS. O'BRIEN: Okay.

MR. SNOOK: Right?

MS. O'BRIEN: All right.

Okay, thank you.

This may be a good time, actually, Commissioner, for the morning break.

THE COMMISSIONER: Yes, okay, we'll take our break for 10 minutes then.

CLERK: All rise.

Recess

CLERK: Please be seated.

THE COMMISSIONER: Ms. O'Brien, when you're ready.

MS. O'BRIEN: Thank you.

I'm gonna go back again to you, Mr. Snook, and I know you have some comments on the quality management when it came to the towers on the transmission lines. So I'm gonna ask you to provide the Commission with your testimony on that.

MR. SNOOK: Sure, thanks, no problem.

So for the transmission lines, I consult – I had performed the inspection coordination for the AC towers. And then later on I was asked to take over for the quality assurance oversight for the manufacturing of the DC towers. So – and to be quite honest with you, I feel that the project was duped on this one.

The – so for the purchase order for the HVDC towers was an extremely large package. I'd say roughly about 25,000 tonnes of steel. The purchase order had been let to Jyoti Steel out of Conroe, Texas.

Now, of course, for a megaproject, you have to look at your schedule, you have to look at your cost and your quality. Those are the three criteria that we always have to consider. And when it comes to a large-scale fabrication, if possible, if the economics work out, we're gonna try to place the order inside of North America, if we can. So for that particular order, had been released to Jyoti Steel out of Conroe, Texas. They had originated out of India, with a sister company in Dubai, as well.

So we were into that order about a year; there was another quality coordinator on that package for about six months. I was asked to take it over, so I did. And when I first dug into the package there, it became evident that for the quality oversight, we were gonna be in trouble there. They were behind with the manufacturing for – the tracking process wasn't up to par.

So after the project management had considered what they already knew, and the additional information, the order was split into three. It went to – some of the steel stayed in the Conroe, Texas facility; the plate fabrication then went to Nashik, India and whatever towers we could put into Dubai, that's where they went. So I think it took me about seven months of begging to go to that facility. Which is not normal. On any other project, I usually have the project managers

coming to me saying: I need you to go to this facility. Validate what they're doing. Because that's my industry. This is what I do. I have the expertise, the knowledge and the certifications to go behind it.

But with this project, it was quite different from that. There wasn't a strong push for quality. At least from what I could see and from what I felt, is that – and I'm very involved in my packages. If I'm awarded – if I'm told that you are responsible for this package, I'll own it. I'll take it. I will not shirk it. If I need help, I will ask for it. If I don't know something, I will say it. But I will also learn it, as well. And if I don't know, I'll find the resources to train in it.

Now – so when that package then became split, what happened then is that then we had to secure additional third party inspectors as well. And that also incurred a cost to us for the additional transportation of the steel to our site.

MS. O'BRIEN: And just to clarify here, so this is the steel for the towers.

MR. SNOOK: Yes, Ma'am.

MS. O'BRIEN: And although another contractor – I think it would be Valard that was given the contract to erect the towers –

MR. SNOOK: Yes, Ma'am.

MS. O'BRIEN: – I understand the steel for the towers was free-issued from Nalcor.

MR. SNOOK: Yes.

MS. O'BRIEN: Which – for people who work in the construction world, they'd all know what that means, but not everyone might. So that just means that the owner is actually going to buy the materials –

MR. SNOOK: Yes.

MS. O'BRIEN: – and provide them for free to the contractor – free-issued to the contractor. The contractor then works with those materials and installs them and does what it needs to do. It obviously – the owners incurred the cost of buying the materials and so that stays on the owner's paper and the contractor –

MR. SNOOK: Yes.

MS. O'BRIEN: – just gets paid for the work that they've done.

MR. SNOOK: Yes.

MS. O'BRIEN: So this is ultimately Nalcor's responsibility though, to get the materials, the free-issued materials, to the contractor on time and in the agreed upon location?

MR. SNOOK: Of course, and we had a very – so for Valard, they were a very astute erection contractor. They could find the holes in it and they did.

MS. O'BRIEN: Okay.

MR. SNOOK: For our specifications, there were hundreds of clarifications that came in on our specifications, which is a point that I can speak to at the end there as well, too. But it goes back to the planning side as well. It's not just you're going to plan the work, but in conjunction with that is what are the quality requirements which are also going to be put on to the project. What rules and regulations in terms of standards, codes, processes and procedures are you gonna follow?

MS. O'BRIEN: Okay.

MR. SNOOK: And we followed what was provided to us by SNC-Lavalin.

MS. O'BRIEN: Okay.

And I just want to clarify a bit of your evidence there. So you said earlier that you – if possible and you can get the right quality and you can get the right price, but you preferred to go – stay within North America. Is that because of the shipment distances and you can truck within North America and it's just less expensive to move things around?

MR. SNOOK: It is, and plus if we actually needed a short order, then we could obtain that there as well. I saw on one of the news broadcasts about the last audit that was done, and there was talk there of the geotechnical not being performed or not being performed adequately. And that led to a lot of our tower

foundations being changed on a regular basis. Well, that – the producer of those foundations are actually out of Quebec, and it's a good thing that they were because it is a short shipping distance to Muskrat Falls.

Now – so for these towers, we're going across Labrador, down into the Island there as well, so they were the best shot there for us. So that's what you have to think about here as well because if we short planned the amount of towers, for example, if we had a broken member, if that – if your fabricators are 3,000 miles away, it's going to take you quite some time to try to get it on site. You may have spares handy; you may not.

MS. O'BRIEN: Okay. So the plan was – you went through a Texas-based supplier here so, initially, your plan was you're going to buy them – they'd all be – this would all be manufactured in Texas and shipped up from Texas. But that supplier then, ultimately, took that order and outsourced it to – not – some of it being done in Texas; some of it being done in Dubai; some of it being done in India. So therefore, now – where you thought you were just dealing with one supplier in North America, now you really have three different sites you're working for. So – and I just want to make sure I'm understanding what –

MR. SNOOK: Sure.

MS. O'BRIEN: – you're saying. So that means then you've got these extra distances that have come into play that you might not have been – you know, you hadn't planned for. As well, you have to – you actually send out your third party inspectors to site to make sure that plant is really up to scratch and they're following the proper, you know, quality procedures and such in the plants. So now instead of one inspection team going down to Texas, you have to send an inspection team to Texas and an inspection team to Dubai and another one to India. Is that –?

MR. SNOOK: Yes.

MS. O'BRIEN: Yeah. Okay.

MR. SNOOK: So for the – so for that decision to split the order, I'm unaware if that was a project direction to the supplier to do that or if they offered up that as a potential mitigation measure. But at the end of the day, it had to be done because the one in Conroe had an extremely high turnover for staff, they weren't able to keep up on the production level. There's no way that they would have been able to meet our delivery schedule.

MS. O'BRIEN: Just out of Texas?

MR. SNOOK: Yes. Yes.

MS. O'BRIEN: Okay.

MR. SNOOK: Now so – that being said, before the inspection teams – so for the philosophy that was applied was that all hire local, not in – from that same community but a travelable distance away because when you hire – so when you use inspectors from the same town or from the same region, at times there can be a clash. So you always want to try to bring someone in but not from that direct area.

MS. O'BRIEN: Okay. And just going to get a – go through, just quickly, a couple of other issues on the transmission parts of the project. I understand there was some issues with the concrete – quality issues with the concrete for some of the towers. Can you just describe that issue for the Commissioner, please?

MR. SNOOK: Sure. To the best of my understanding – so part of my duties as well was to also assist the overall quality manager for the project in the development of his monthly metrics. So how are we doing on C1? How are we doing on C4? How are we doing on C3, for example? And in terms of how are we doing, what are the key performance indicators or KPIs? How many non-conformances do we have? Corrective actions? How many inspections have been done? What are the statistics?

So for one of the pieces that came out of that research was that we have failed concrete on the lines. When I asked the question how many do we have, it is approximately 400 foundations. So I would estimate 100 towers. So we're – the – on the concrete, to my recollection, did not meet the strength requirements. Now, that bodes – a very easy question is that: How did we have 100

towers go in and we don't know in advance that the concrete is bad?

Larry made a point there before for the concrete testing, and Ed could also back this up here as well, is that – so, for concrete testing, you're gonna take a small cylinder – maybe about the size of this, I guess, right – from the lobe of concrete which is being poured and then you're gonna place that aside. You'll take a minimum of three of those and then you're gonna do what's called a break test to test the compressive strength of that concrete. And you'll do it three, seven – no, I would seven days, 14 and up 28 days, Ed?

MR. E. KNOX: Twenty-eight days and sometimes 60 or 90.

MR. SNOOK: Right.

So for our requirement there on these ones, I believe, was a test seven days afterwards, 14 days and then for 28 days. Now it will vary on the use of that concrete, but at the end of the day, you should have a fair idea. When you do the first break, whether it's three days or whether it's seven days, you'll have an idea of is it gonna meet the requirements.

Now there are times to where you do your – when you do a second test, the result will be lower than what the first one was, but that shows you that you have a flaw in how the sample was taken. But after you have your first break, you'll have an idea.

So one of the issues that the project had – and why it made this decision, I have no idea 'cause I've never seen it before – is that there were a limited number of individuals that had the title of quality inspector, but they were few and they were far between. The majority of what was used throughout the project – C1, C4, C3 were construction monitors.

Now, the role of a quality inspector or of a quality assurance inspector and the role of a construction monitor are completely different. If you want, like, a nice, easy day, construction monitor – how much concrete did they pour, how many trucks moved, how many hours did they work, what was the weather outside – easy. For the role of a quality assurance is that – are they following by the spec, how much paper did they produce that day, what is the quality of the turn-over documentation, are they producing the red lines on an ongoing basis.

So if this – if there had been more focus on a quality assurance aspect on all components, I'm certain that we would have – we may not have been able to save the schedule because we can't change the contractor, but we would have been able to flag the issues if the project management team and the area managers were unaware. That's if they were unaware, at least it could have been flagged. That's when you would write the non-conformance, for example.

MS. O'BRIEN: I'm going to go to you now, Mr. Knox, and get your comments with respect to your experience with respect to quality management on the – at the Muskrat Falls generation site.

MR. E. KNOX: Okay. I guess a general overview with respect to Astaldi: we were responsible for the concrete operations in the powerhouse and the spillway. We had approximately, I guess, 40 people, you know, within the quality department. First when I joined the team I would say the quality management was a little less than stellar, just based on the number of NCR, the non-conformance reports, that were being generated on the work to date as well as, I guess, the nature of the NCRs and why they were being generated and so on and so forth.

But as the project went on, we increased, you know, in the quality management side of things. Were we number one? No, by no means, but we did have a very good oversight, especially towards the end of the project. So we had a steep learning curve. And this came with the level of production as well. Once you were increasing your production of concrete up to, you know, 20,000 cubic metres per month, you know, you had to have a significant amount of resource available for the quality management side.

Again, one of the biggest flaws we had was production versus quality. So obviously the number one goal was production; safety and quality came second, okay? And this was significant in the amount of rework that Astaldi had encountered during their contract up until

2018. And so, again, most of the instance we, you know, encountered from the quality management side on concrete was due to, I would say, lack of planning; rushing – okay – the work; exposing concrete to cold temperatures, you know, resulting in additional testing, you know, that Perry touched on as well; and having to do actual core samples of the concrete to verify that it was good, simply because we exposed it to freezing temperatures within the first 24 hours of placement; you know, having the, you know, heating and hoarding in place. The planning of the heating and hoarding, you know, it's not a difficult process to plan for heating and hoarding. One of the biggest things was having fuel available for the heaters, you know? Having the appropriate resources there for somebody to actually man, you know, watch those heaters to ensure that they didn't run out of fuel.

MS. O'BRIEN: Some sometimes –

MR. E. KNOX: Yeah.

MS. O'BRIEN: – are you saying sometimes you didn't have enough fuel, you didn't have enough people there to keep the heaters …

MR. E. KNOX: I wouldn't say we didn't have enough people. I'd say that it was poorly planned –

MS. O'BRIEN: Okay.

MR. E. KNOX: – and not having the appropriate resources assigned to do that work, and assigned the criticality, you know, what could result as a consequence of freezing concrete, you know, and the additional testing and rework that was associated with that, so a lack of planning from that aspect.

And then, you know, we step into the structural steel component. And when we – when I talk about structural steel, I refer to the powerhouse structure itself, which was fabricated by Supermétal in Quebec, and actually installed by Supermétal in the beginning and then self-performed by Astaldi towards the end.

So again, a lot of QC issues there, both at the fabrication facility and on the job site itself.

MS. O'BRIEN: So quality control, QC.

MR. E. KNOX: Yes.

MS. O'BRIEN: Right**.**

MR. E. KNOX: Quality control and the actual design, you know, the installation processes, the number of issues we had – I would say some at fabrication that were exaggerated to some extent, and I, you know, I'll – I won't comment too much on that, but from the owner perspective, from a QC standpoint, we felt, as Astaldi, that a lot of these issues at the fabrication facility were exaggerated and could've been dealt with in a more efficient way, more efficient manner.

And, actually, on the job site itself, we had a lot of issues dealing with the installation of the powerhouse structure simply because you're doing it in adverse environmental conditions. Everybody knows that structural steel is – it expands and contracts with heat and cold. So, I mean, if you're installing it in a minus 25-degree temperatures at night and the temperature goes up to zero degrees, you know, in the day, you're gonna have issues. And these were a lot of issues we were encountering during construction.

And as well, then, we move into the structural steel and the installation of the crane rails, you know, for the overhead cranes in the powerhouse. Again, a constant issues, you know, with this amount of rework that was associated with it simply because of the nature of installation and the nature of the design, in my opinion.

So a lot of quality related issues right across the board – were they managed appropriately? The majority, yes, with respect to the process. The outcome, were they managed appropriately? I would have to say no, okay? So processes were in place but the actual resultants at the end, you know, in my opinion, resulted in significant cost overruns simply because of the way that the process was managed on the part of the owner as well as Astaldi. And the – in my opinion as well – the actual design and – of the – certain issues of the fabrication.

MS. O'BRIEN: Okay.

And on that – I think it comes part and parcel – I wanted to go back to you, Mr. Cavaliere. We've – there's been lots of evidence today and days before today about the aggressive schedule that was in place. And I wanted to get your view as someone who's actually down on the ground actually trying to work to a very aggressive schedule. What are the effects of that for you?

MR. CAVALIERE: Schedule – once it started getting – working – we're getting more production out of it, (inaudible) to get quality went a bit out the window; we knew that right off the bat. And the schedule and being aggressive – the lack of planning is what made it so aggressive. If it would've been planned better, you can have an aggressive schedule, especially when you know where – you know, the next step where you're going on.

But what I found out with this job, let's say we had scheduled a pour for today at 4 o'clock and I – come 11 o'clock we're not done yet. So that's – we got four more crews off another pier, bring them here, and now we're gonna be – 80 guys working on one place. So we're like – too many people on trying to get it done for 4 o'clock so we can pour today. Instead of saying, you know, I have a schedule – the schedule will tell you; this time you have to be here, that time you have to be there, and by 4 o'clock you're ready.

And you have to do the quality inspection – it has to be done – or you have to do it simultaneously as we're doing the work, which is pretty difficult. Usually you finish the work, then they come in, they inspect it, they visualize it, they sign off on it or say hey, it's missing this, it's missing that. You fix it while they're there or, you know, meanwhile, and then it's done.

But being so aggressive, we didn't have that opportunity. And another thing that I found was that with this aggressive schedule, we knew every day that we had to work overtime. And you could never get an answer from a foreman, or from a superintendent or from a GF.

I'd ask – I was foreman for a while, I asked – I used to ask my general foreman, are we working tonight? I don't know. I said what do you mean, you don't know? I don't know. I said it's – you know, it's 12 o'clock, I'd like to tell my guys, yes we're working tonight so if they got – they can bring extra lunch for tomorrow, you know – if you have some kind of – it motivates the guys to want to work.

Not at 4 o'clock in the afternoon, you go tell your guys: hey boys you got overtime tonight. Half of them will say no, half of them will say I didn't bring enough lunch, another guy – you know what, I'm tired. I mean, it – the morale was hit hard for the workers because they didn't – there was not enough foresight to say to the people. The people that knew (inaudible) – the people that knew they were working overtime were concrete guys because they knew, but us formwork guys, we didn't know.

Rebar guys – most of them knew (inaudible) – but as a the foreman when we have these foreman meetings, I actually asked the project manager – the deputy project manager about it – and you were there Ed, and he told me – and I asked him the question why don't you know at 12 o'clock, and he answered me because I don't. And I said you're telling me on a project of this size, you don't know what you're doing in four hours from now?

And then like, I was stumped. I mean, the answer he gave me for a deputy construction manager was like, I mean, I wouldn't have said it. I would have said something else but I wouldn't have said that because that's like, you know, lack of knowledge. And I mean, to me, like, you know, you don't say those things. And that put the morale of the workers really down; because it kept – everybody kept asking the same thing: how come, you know, how come we can't find out at 3 o'clock even, if we're working overtime tonight at 5 or 5:30? You know, that's two hours away.

The lack of planning is, you know – if you're planning ahead of time, you should be able to tell them yeah, overtime the rest of the week. Every day you have overtime; or you're going to say, you know, we have 30 guys working overtime, separated between your 80 guys you have. Separate, you know, 30 – today is your 30, tomorrow is his 30 – say you spread around the overtime to everybody. 'Cause not everybody wants to do overtime; some people do, some people don't.

MS. O'BRIEN: And I take – what I'm hearing from you and it makes perfect sense, that when people know in advance that they're gonna be working – I know I'm going to be working until 8 o'clock tonight, they're mentally ready to work until 8 o'clock tonight –

MR. CAVALIERE: Exactly.

MS. O'BRIEN: – they feed themselves like they're gonna be working until 8 o'clock tonight.

MR. CAVALIERE: Yes, right.

MS. O'BRIEN: But that unknown, mental preparation. Like, at 4 o'clock you don't know if it's almost quitting time or if you're here for another 4 hours –

MR. CAVALIERE: Exactly.

MS. O'BRIEN: – and that can be hard on people as well.

MR. CAVALIERE: That's hard. I mean, you know, anybody would like to know ahead of time if they're working overtime. I mean, you know, it's part of our culture and the way we work. I mean, if you know you're doing 12-hour shifts, you get organized for 12-hour shifts.

MS. O'BRIEN: And what I'm hearing too – and I just want to make sure that I'm understanding your evidence correctly and it's clear –

MR. CAVALIERE: Yeah.

MS. O'BRIEN: – is that that when you're working to an aggressive schedule, that means often times there's just a real focus on like, getting more work done and that means you get – I take it you may be putting more bodies on the work. But more bodies on the work doesn't necessarily – doesn't always help because if there's only so much – you know, a work front is only so large. There's only so much space for people to work that sometimes –

MR. CAVALIERE: Right.

MS. O'BRIEN: – you know, doubling the number of people on it doesn't mean you're going to double your production, is that fair to say?

MR. CAVALIERE: And I think I gave you a good example the other day saying if it takes 10 men 10 days to do a job, it doesn't mean if you put 100 men you can do it in a day. And that's exactly what it is, I mean, if it takes you x amount of time with so many people, that's what it takes. If you double the workforce, triple, quadruple, it's not gonna get done any faster.

MS. O'BRIEN: And at times on this project, did you find that there were too many people there in a space for what could physically –

MR. CAVALIERE: Oh, yes.

MS. O'BRIEN: – do the work.

MR. CAVALIERE: Oh yes –

MS. O'BRIEN: Yeah.

MR. CAVALIERE: – that happened more than once. I mean, I'm – you can ask Ed, he's been there and he can ask – we were all there, we all know. I mean, like I said, when it was a critical time that we had to pour a certain day, they would just load people – bring people, and then there'd be like – there'd be too many people. Then you'd be looking for this, you'd be looking for that, you'd be looking for a power cord because everybody'd be – there's only so – a limited amount of electricity, you know, to plug in your tools. At (inaudible) time you got all these people working there, everybody trying to chase power cords and this – it was chaos. And then – it's not good.

MS. O'BRIEN: And how does this compare with – I mean you've worked on other megaprojects.

MR. CAVALIERE: Yeah.

MS. O'BRIEN: We know that megaprojects often do have schedule pressures, things come up are unexpected, sometimes work has to be accelerated. How did your experience here on the Muskrat Falls Project – is it the same or different from what you experienced on other major projects?

MR. CAVALIERE: This is the only project I've ever done in my lifetime, which was – had no planning involved. None. And that to me, that's the reason why – the cost overrun right there. There's no planning; no foresight was going on. I mean, I've done big projects and most of the time they always seem to go over-budget or over-time, but not by years. I mean, a couple months, yes, but not years. I mean, again, has to do with planning.

If you plan your job and you do it safely – because safety has a big part to do with it – and you do a good quality, at the end you got a good product. And what – yeah, it might cost you a bit more, but you know what? At the end, you got a good quality product and you get – and your time is going to be well allocated to your job for you to do it. And you're gonna be safer about it too because safety is – I mean thank God nobody got killed yet on that job site. It could happen, it could've happened – it didn't happen yet, hopefully it will never happen, but we got some close calls and – not good. Not good.

MS. O'BRIEN: And I take it – and again, I just want to make sure I'm understanding your evidence – is that sometimes when you're rushing the work, when you've got all – you know, you're trying to keep up with the aggressive schedule, sometimes quality suffers and you can end up having to do more rework, which – so – the – one expression I've heard as a child was more hurry, less speed.

MR. CAVALIERE: Yeah.

MS. O'BRIEN: In other words, you're – you think you're trying to go faster but in the end, you're actually costing yourself more time because you're making mistakes that then have to be fixed.

MR. CAVALIERE: Right. At the end, the ultimate goal is if you have to do rework, rework costs three times to do it right the first time, yeah. But the model was always do it right, do it right the first time. Every time you touch it you already did it once, now you got to take it apart and you got to redo it, so you did it three times to get the final product.

MS. O'BRIEN: And the amount of rework you saw on this project, how does it compare to other projects?

MR. CAVALIERE: Here it's like – astronomical-model rework. I mean, it's like – it's a lot of work that could have been done right the first time, and it wasn't because of the schedule – because of the aggressiveness. And coming back to formwork, I mean, I never never in my lifetime built formwork without putting a release agent on it. And on this job site, I never saw one barrel of release agent on the job site.

MS. O'BRIEN: Okay.

So a release agent – so formwork. Again, I just want to make sure everyone understands. But formwork, this is – you know, you're gonna pour concrete

MR. CAVALIERE: Yeah.

MS. O'BRIEN: Concrete is liquid –

MR. CAVALIERE: Yeah.

MS. O'BRIEN: – when you pour it so you need to have something to hold it in place –

MR. CAVALIERE: Yes.

MS. O'BRIEN: – to keep – get the shape.

MR. CAVALIERE: Yeah.

MS. O'BRIEN: So that's the formwork and it's often made of wood –

MR. CAVALIERE: Plywood.

MS. O'BRIEN: – but it can be made of other substances as well.

MR. CAVALIERE: Plywood, plastic and laminated plywood, you know what I mean?

MS. O'BRIEN: Okay.

MR. CAVALIERE: You're supposed to put a release agent on it so the concrete doesn't stick.

MS. O'BRIEN: So then when you have to – when the concrete's set and it's hard enough you can take off your formwork, so the stripping –

MR. CAVALIERE: Yeah.

MS. O'BRIEN: – which I understand stripping actually takes a fair amount of time.

MR. CAVALIERE: Yes, it does.

MS. O'BRIEN: Yeah. So the stripping of the formwork – so the release agent –

MR. CAVALIERE: Yeah.

MS. O'BRIEN: – it takes time to apply, I guess, the release agent –

MR. CAVALIERE: Well it's – it's – yeah.

MS. O'BRIEN: – but the benefit is it's easier to strip, is that –?

MR. CAVALIERE: It's easier to strip and you get a better quality product.

MS. O'BRIEN: Okay.

MR. CAVALIERE: And as Ed can confirm, we never used it and you can see why. When you go to the job site, if you're a concrete – if you know a bit about concrete, you can tell a lot of the places never saw form release because the finish of the concrete is very, very rough.

MS. O'BRIEN: Okay.

MR. CAVALIERE: And it's supposed to be almost shiny like a table, but it's like really, really rough and I mean, the client said it's okay, but to me, not okay.

MS. O'BRIEN: That's helpful. And I think going back in terms of the idea of rework, I know, Mr. Snook, you already talked a bit about the concrete and the towers that – so there was quality issues you ended up – there – concrete had to be busted out and re-poured for some of this (inaudible).

MR. SNOOK: I don't – I do not know if it was ever busted out or re-poured.

MS. O'BRIEN: Okay.

MR. SNOOK: When I left that portion – so when I transferred over to the C3 portion, I transferred my duties for the coordination of the monthly quality metrics over to another individual.

MS. O'BRIEN: Okay.

MR. SNOOK: And at that time when I had transferred over, this issue was still open –

MS. O'BRIEN: Okay.

MR. SNOOK: – as well as many others on the line there as well.

MS. O'BRIEN: Okay.

That's fine. I'm going to get you then maybe to go – I know with respect to the HVDC specialty, so component C3, you also had some comments with respect to quality control on some aspects of that work, which was primarily being carried out by GE Grid Solutions, Alstom, we'll hear all those names referred to for that contractor. But yeah, so if you can give the Commissioner please your comments there.

MR. SNOOK: Sure thing, certainly.

So again, with GE Grid Solutions, it would fall into the same category of contractor for this project as, in my opinion, as Astaldi, for example. So GE Grid Solutions were selected – or Alstom at the time – were selected to be the execution contractor to go to the site – so there was trees – they would – so for the Soldiers Pond site for example, they would clear the site, perform the civil, erect the buildings, run the wires, install the towers, fill the buildings with the equipment, which in the majority of the cases, they were manufacturing or they had subbed out.

So they would have that entire setting. You would look at it and it was all trees, by the time it was finished, it would be a fully operational substation. That was their scope. To my understanding, GE had never operated or performed that scope before.

Usually – and this is through multiple conversations with other individuals that have much more high voltage EA experience then what I do – is that they would use a company like Alstom or like, GE for example, if they wanted to have a turbine, a synchronous condenser, for example, transformers. They would use them to procure or to manufacture the equipment, not go from scratch all the way up.

MS. O'BRIEN: So this package here was really a turnkey or EPC –

MR. SNOOK: It was turnkey, yes.

MS. O'BRIEN: – package, yes.

MR. SNOOK: But now what that entails though, is that – (inaudible) with Astaldi is that if you don't know, well then you have to be willing to ask and you have to be willing to learn. So I went on to that portion of the project in May of 2016. And when I went in there, I was extremely surprised.

Prior to – I'd be taking the lead position on that scope – I had direct communications with the then-quality manager for that component and I would ask them; you have inspections, or you have commodities which are in manufacturing. Can we sit down to discuss the amount of surveillance you would like on these lists of packages? And all of the packages, all of the pieces of equipment were – sorry, were all available to us in the project dictionary or for the work breakdown structure.

The response which I received was why would we do that? I said well, I said, I don't understand your response. They said well – I said it is a turnkey. We don't need to perform any quality surveillance, okay? So that's the first time I ever heard of this in my career. So what that led into was that you can help a contractor upfront. So Astaldi, GE, ABC Fabrication – if you know that they're coming in under price, if you know that they don't have the necessary experience or background, you need to step up and you need to go to them and walk through it with them. You got to help them, right?

I have not had a contractor, vendor yet, and – either here for this project or for my other projects – to where I would not go to them and walk through the requirements with them so I'm sure that they're fully aware of what the requirements are. So when I went in to that package – so for the buildings where – so for the civil it was already completed, the Soldiers Pond site. And I will choose that site as an example. It was the same for all of the other ones there for the C3.

So for – the civil was done, the buildings were up, we were putting roofs on and we were getting ready for equipment to start arriving at site. There was not one piece of turnover ready to hand over to us, nor was there sign-offs on any red line drawings, nor were there – the quality assurance checks and balances had not been performed by the team. So it was a battle then.

So – but now you're also in a schedule crunch now as well because they were late getting going, they were late also trying to turn over that package. But now you've got even more media attention onto the project because if we can feed power from Churchill Falls into Soldiers Pond, well that's great, because now we don't need to use the Holyrood station, for example, right?

MS. O'BRIEN: Right.

MR. SNOOK: But they weren't ready.

MS. O'BRIEN: Okay.

MR. SNOOK: The equipment was being sent to site without our sign-off, our knowledge. There was equipment constantly showing up and we didn't know that he was even done with the fabrication process yet. GE could not come to us with a schedule. Every scheduling meeting we had was just a frustration for us, for the entire team, right? And that's what this was.

As a team, we were also trying to work with GE, but it's – like I said before, if you make a mistake or if the work's not done or if you're behind with the schedule, you have to trust your vendor. You have to trust your contractor to inform you, to work with you, to tell you because if they don't, you can't – you, as an owner or as the oversight, can't help them. But it was a constant battle there.

MS. O'BRIEN: Okay, and we're gonna come back in a few moments to that idea of how owners and contractors can work together. Thank you.

Before we do that, I'd like to talk a little bit about winter productivity. So I'm going to start with you, Mr. White. So 10 years on Baffin Island, you have some experience with working in cold weather. So I'd like to get your view on, you know, what are the – how does productivity change between winter and summer work?

MR. WHITE: I guess you could put it in probably a percentage. And everybody knows that productivity goes down in the wintertime. Even if you lived here on the Avalon Peninsula, one day it's raining and the next day it's -20 with the wind chill and you have to dress and work accordingly.

On a good day productivity probably goes down about 25 per cent in the wintertime. And I would say on a bad day you're probably getting half the work done. If you were getting – as a contractor, if you were getting eight hours' work out of us on a nice warm day, that same work in -35, -40 you're probably getting about four productive hours. So winter work, you have to either change your manpower or change your schedule accordingly if you're going to stay on budget, for sure.

MS. O'BRIEN: And we understand for – you know, the plan for Astaldi was to be working under this Integrated Cover system, this dome. When you have a – you know, a big structure like that, you know, that's being heated, are you able to, you know, get the same, like, say summertime productivity if you have a covering like that?

MR. WHITE: I don't believe the building ever got to the point of heat. I left there in 2015 when I transferred out to go to Bull Arm, and the building was basically still under construction. Fifty per cent of it was up, the roof was on it. Several of the cranes were operational, there was a few other components, lighting and whatnot, but I really don't recollect if the heat ever got turned on in that building.

MS. O'BRIEN: Okay.

MR. WHITE: One of the other gentlemen would probably attest to –

MS. O'BRIEN: Okay.

MR. WHITE: – what happened here.

MS. O'BRIEN: Thank you.

I'll go to Mr. Cavaliere. Can you tell us, what's your experience working in the winter cold?

MR. CAVALIERE: Well, to me, the 30 per cent may be – is very conservative. I think it's more like 50 per cent productivity, especially in Labrador.

MS. O'BRIEN: So you – instead of a 30 per cent reduction in productivity might be conservative, you might even go down to 50 and –

MR. CAVALIERE: I'd go to 50.

MS. O'BRIEN: Okay.

MR. CAVALIERE: I think you lost half the day. I – maybe – and that's in the daytime. In the nighttime you probably lose more than that because at nighttime temperatures go even colder and you have the darkness to deal with, so …

MS. O'BRIEN: Okay.

And what about under an IC – had the ICS been successful, say, right? So if you'd gotten this big structure, do you think you would have been able to work as, you know, inside and out, summer and winter the same?

MR. CAVALIERE: If the ICS structure would have been finished properly, heated properly and – I still would – I still think the production would have been down due to the complexity of the cranes, how to handle material. And it wasn't well thought of.

You get the material from, I'd say, from draft tube one, the door would be in the middle of the building, so that would put us, like, in draft tube three, two, 2½, let's say, in the middle of two. There's four draft tubes so you'd be in the middle.

Let's say you want to get it to one. Well, to get it to one, you got to take it with (inaudible) three, drop it off for two, leave it on the ground, pick it up, send it over to three, drop it down, then you can install it. So you'll have to manoeuvre the material three or four times before it gets there.

And add to that there was different levels of cranes. There was at a certain level, then there was another one higher up for the intake. So I think the ICS structure was a big – for me – it was a big failure to begin with. I think that there was no foresight in how they were going to use this building and I think they should have never built the ICS structure. That's what I'm thinking.

MS. O'BRIEN: Okay.

And, also, I guess – I just want to make – you said earlier this had big doors. So when you –

MR. CAVALIERE: Yeah.

MS. O'BRIEN: – talked earlier about, I guess –

MR. CAVALIERE: Yeah.

MS. O'BRIEN: – heat escaping. So I –

MR. CAVALIERE: What I'm saying, in the wintertime –

MS. O'BRIEN: Even in the winter it could still be cold in there.

MR. CAVALIERE: Well, you would've never be able to heat it up. Even at – as we speak now – in the powerhouse it's not that warm and the building is finished. I mean, down in the draft tube it's actually almost freezing. So – and the building is finished, like I said, so – and I could just imagine with this thing.

And we don't open – we have one garage door to open. It's 16 by 16 foot high. That's what we open. As soon as you open it, it gets cold fast. If you leave if open for a couple of hours you cool off the whole building.

MS. O'BRIEN: And, of course, I guess, there's also winter work – there is that cost of the heating and hoarding and it's –

MR. CAVALIERE: Oh yes. I mean, it's – cost is, I mean – furnace oil or whatever you're going to be using now to – now they're using a bit – like, more electricity, but the cost of fuel oil was astronomical. I mean, I don't know how many litres they went through per day in the wintertime but (inaudible) I would like to see the bill.

MS. O'BRIEN: Okay.

I just want to talk a little bit about safety culture and you've – I'm going to stick with you Mr. Cavaliere for a moment. You've been in the industry for a good number of decades now and so you've seen this industry for 40 years. Has there been changes in the safety culture over that time?

MR. CAVALIERE: Safety culture has actually got better in the – from the beginning when I started working. And safety is a big element of construction in any project now. All projects now have to have certain safety guidelines, safety planning, safety coordinator, people on site: all projects. Even the smaller job – projects have to have safety coordinator working there now.

At Muskrat Falls, the safety culture – there's a safety culture there but it's not implemented. The safety that I got involved in the daily – in the daily safety was going on, on the job site. We had several instances at Muskrat Falls. We could've killed a couple of people a couple of times. We didn't, thank God.

We lost a beam, 40 ton. Nobody got hurt. We lost some roof trusses. Nobody got hurt. We dropped a crane. Nobody got hurt. We lost a draft tube. Nobody got hurt. We lost a rebar cage. Nobody got hurt. All these instances, I'm telling you, could have been easy, easy one or two dead – everyone in there. We were lucky. That's all I can say, lucky.

That culture there – again, the schedule is driving – it's driving – you're trying to speed up stuff, so you cut corners. By cutting corners, you got incidents, you get accidents, and that's – this is what happened.

MS. O'BRIEN: And I know when it comes to a high safety culture, this means that, you know,

people might not fully understand what that means. But there's time taken up every day, you know, reviewing, having safety meetings. So that takes some time out of a day. Is that fair to say?

MR. CAVALIERE: Yeah, it does, but that's only to inform your workers that, you know, what you're doing today, I mean, is dangerous. You know, you got to be tied off, you're working at heights, this and that. And there's different things that, you know, Nalcor implemented that maybe should have been thought of a bit more, especially in the work we're doing.

We're working the formwork which is a, I'd say, three metres high – 2.7 metres high, which is about eight feet – nine feet. And they went with the – with this: He has to be tied off at six feet. So when you're working with this formwork which is eight foot high, and the norm for Newfoundland and Labrador is 10 feet.

MS. O'BRIEN: You don't need to tie off or harness yourself –

MR. CAVALIERE: You don't have to tie off –

MS. O'BRIEN: – until your 10 feet?

MR. CAVALIERE: – lower than 10 feet, but they down to six feet and that there created more problems. And that thing there, that – part of that six-foot tie off became a – not an issue but – it is an issue, but they have to be tied off at six feet so you tie off to what, you know what I mean? It's like they give you a piece of paper telling you, you know: Do the calculation, you need 17 feet before your harness goes off. You're tied up so – you're tied off at your elbows, you gonna fall down, you gonna hit the ground before anything goes up.

But it's just the culture there and they kept pushing and pushing. Instead of us going back thinking, saying: You know what, when they're working on the formwork, we could accept the guys weren't being tied off because they're only working, you know, this five feet, six feet off the ground, seven feet off the ground. We could exempt them? No, you have to be tied off. Sure, if you're working at 30 or 40 feet in the air, sure you have to be tied off.

But in certain areas, they could, like, exempt or give the worker an opportunity not to be tied off but then – but it would've been more productive and the guy would have been happier because a lot of guys were frustrated at – you know, where do you tie yourself off to? I mean, in sky above? Where? Out there? There is nowhere to go.

MS. O'BRIEN: And when you're wearing personal protective equipment, so PPE, and including harnesses and things, it has an impact on your mobility. Is that fair to say?

MR. CAVALIERE: Of course, you have –

MS. O'BRIEN: It's not – you have to work in your harness then, you're tethered to something.

MR. CAVALIERE: Yeah.

MS. O'BRIEN: You can still work but it's – you can't move around as easily as you could without it, yeah.

MR. CAVALIERE: Oh, yeah. I mean, you're limited to moving about six feet. That's what the lanyard is, six feet. So every time you move more than six feet, you got to retie yourself off. Then you have this thing in back of your bag which is another – you know, heavy. And then you're working through rebar so when you try to go through rebar, you're getting jammed up everywhere. And, you know, it was not an easy – if you can work not wearing it, you get – a lot easier to work.

MS. O'BRIEN: Sure.

And so over the course of your career, I'm – you know, safety's, I'm sure, you know, it's gone up around on job sites and there's really good reasons for that, of course.

MR. CAVALIERE: Yes.

MS. O'BRIEN: I mean, we're – we wanna save lives and keep people from being injured on the job. But I'm understanding it would have some – it does have some effect on productivity, but you just need to plan for it. Is that –?

MR. CAVALIERE: Yes, so the – like I said, you could put the last six foot to be tied off and I agree that, but it depends on where you are. If

you're working inside a (inaudible) which is eight-foot high and you're, like, seven foot off the ground, you could exempt that area there from being – doing – be tied off, which is easy to do.

All they have to do is say, well, you know, in this area here you don't have to be tied off and it would have been – it would have brought up productivity quite a bit, made the guys happier, too, because people were going, trying – get frustrated and, you know, asking, where are you going to tie off to? And then it was brought up often in the meeting, where do we tie off to, to the rebar? Well, theoretically, you're not allowed to tie off to rebar. I mean, rebar – the anchor part has to hold 5,000 pounds.

MS. O'BRIEN: Okay.

MR. CAVALIERE: So that's what the law states. Rebar doesn't hold 5,000 pounds. It has a piece of wire holding it together. So you put yourself in that situation but you got to be tied off. So, okay, you tie off to something but, realistically, you're tying off to nothing and if you fall you're still going to get hurt.

You understand? You're not saving yourself and you're not making any favours to nobody. All you're going to do is you're going to hurt yourself, so you're extra careful.

You got to make sure you tie it off because if they catch you not tied off, you're going home. It's an absolute. And you – you know, you're – in the back of your mind, you always have to tie off in case somebody shows up or safety shows up or – they can actually send you home for not being tied off. So, you know, the culture – again, the work environment is sour, to put the right word. It's – people get frustrated.

MS. O'BRIEN: Mr. White, I'd like to get to you and get to your comments because, again, you've had a long career in the construction industry, so you would have seen changes over that time and be interested in hearing your view.

MR. WHITE: Yeah, safety has come a long way. And I agree with you 100 per cent, there's a lot of valid reasons for that. I know first when I got into the trade and working various jobs is that as long as there was two journeymen electrician we could work on 600-volt live power no problem. And, actually, I was quite comfortable working on it, actually. I felt more comfortable working on that than I did eating a sandwich most days because you just get used to it.

And now it's evolved with the incidences and lives over the years is that most jobs now – well up to 90 per cent of them – is that basically you do all your work at a zero volts and it's only a very few qualified people with the proper protective equipment that are allowed to work on live power. And, again, you do the proper planning, all the safety procedures and whatnot.

Safety is – it's twofold. There's a lot of common sense involved in safety and when you have a large workforce and they haven't worked on large projects, safety's not always their biggest concern. I don't want to feel like I'm picking on anyone, but for years here in Newfoundland you never had to have a harness when you were on the roof of a house. But over the last few years, due to a couple of deaths, now it's mandatory.

Basically I've been wearing a harness since they came into effect, but you take that same individual that never wore a harness and put them in a situation like Larry's talking about, then he's more or less going to look at Larry and think he's a bit of an idiot because he's tied off at six feet. So education with the safety is a big thing, but you have to have the proper safety people to implement the safety program. And as you said, if you went over six feet, you knew you were going home – you were losing your job.

MS. O'BRIEN: If someone caught you – if you were found out – you were supposed to be tied off, if you weren't tied off that was taken very seriously.

MR. WHITE: Or to take it one step further, if somebody on site didn't like you for whatever reason, I mean, you know, they might have fell out with their grandfather a hundred years ago or whatever, if they see you over six feet they're gonna report you and they are going to make sure you're going home.

So like I said, the safety culture needs a lot of thought and it needs a lot of understanding. And

on projects the size of Muskrat Falls, and the number of people on the job, most people were unaware of where this safety culture came into effect and why it came into effect over the years because they never witnessed it, you know. And that was always a bit of an issue on large construction jobs, is that the people coming in that never worked large industrial sites before and didn't like to conform to the laws of safety. So yeah, safety was an issue.

MS. O'BRIEN: Okay.

And that's a good bridge or segue over to the next area I want to talk about and so I'll stay with you here. And this is about the supervision and experienced supervisions – an area I'd like to get in to.

One of the issues that we had raised a number of times in our interviews was that, you know, part of – one of the reasons why productivity was poor, time was being wasted, was because of a lack of experienced supervisors on the site. And I'd like to get your comments on that and I think I'll also go to Mr. Knox in a couple minutes on the same topic.

MR. WHITE: I think that follows along much the same as the implementation of the safety program. And of course, I was always – thought, or I always hoped that I got hired on my qualifications, not on who I knew or anything else. When I went to Muskrat Falls, of course I went down as a journeymen electrician under IBEW. And there was over 2,000 members at the time in IBEW, so you can imagine there's a lot of qualified electricians in the province or whatever.

Again, we were a small subcontractor. We didn't have a lot of supervision starting off. We had a working foreman, and then you had a foreman, and as the crew grew you got a general foreman, and of course, then you got the superintendents and what not. Most of my observations on the supervision, you may say it was on the outside looking in at the other trades, like the concrete people, the rebar people and whatever.

And with the Astaldi division – with the supervision, in my honest opinion, it really left a lot to be desired. Reasons? Probably only Astaldi can answer. But it seemed like a person with no qualifications could come in as a carpenter; the next day he was a foreman; the next week he was a general foreman; and probably a couple of weeks after that he was a superintendent. And of course, blood is thicker than water, so what they'd do then is they'd hire their relatives to be the general foreman and the foreman, and – regardless of qualifications.

We felt, on the outside looking in, that that was the trend that was happening. You get back to the work force, now you have a worker here and something is going wrong. Well he really has nobody to turn to; because if he complains to the foreman, the foreman is going to say well my brother is the superintendent so we'll just get rid of you and we don't want to hear any complaints.

And to me, that created a pretty toxic environment. And again, I left in 2015, so it may have improved. I don't know; I didn't really pay a lot of attention. And again, that was just our observations as to subcontractors on the site as unionized tradesmen, is that they didn't always have the qualified people in place to earn the respect of the workforce.

MS. O'BRIEN: And did this differ from other projects you've worked on, or is this sort of an industry-wide issue?

MR. WHITE: I think it's becoming more prevalent now, and again, it's during the boom or the bust. When I was out in Alberta at the CNRL site I mean, we had one contractor there that at one time had 2,500 men; 1,600 of them were electrical, and then there was the pipefitters, of course, and what not. So they could come along and at 3 o'clock in the afternoon say we need two foremen; where are we gonna get them? We'll ask that guy over there. Well is he qualified? Well it doesn't really matter, you know. The job will be done and we'll be gone before anything goes wrong; so it's probably more prevalent than we think.

MS. O'BRIEN: Okay.

So not just a problem with the Muskrat Falls Project?

MR. WHITE: No, I wouldn't tie it to just Muskrat Falls. And again, when I was in

Muskrat Falls, I mean times were pretty good on the Island of Newfoundland. You had Vale out in Long Harbour, you had Hebron gearing up, you had other projects, Voisey's Bay, you know offshore work going on. So, you know, without knocking anyone, maybe there wasn't a lot of people in the pool to draw from. So that could have been a big factor as well.

MS. O'BRIEN: 'Cause other – with other jobs going on a lot of times closer to people's homes, that might be –

MR. WHITE: That's correct.

MS. O'BRIEN: – you know, someone might prefer to be – to take a little less time to get home on the weekend.

MR. WHITE: Well, I can put it in perspective in another way: when Fort McMurray is booming – and everybody calls it little Newfoundland – but nobody from Edmonton or Calgary is going to travel to Fort McMurray because it's too far away from home. But right now, unless you live in Edmonton or Calgary, you're probably not going to get a job in Fort McMurray because the work is scarce, right? So it's ups and downs. That's the way it works.

MS. O'BRIEN: Okay. I'd like to get your comments on that, Mr. Knox.

MR. E. KNOX: I guess when it comes to – from my aspect, looking at it from a quality professional viewpoint, one of the most important things we look at is our resource management on the job site. And, you know, hiring competent people – you know, people who have the educational background, those who have the experience and the training, and combining all those together and putting it into a competency level, that's one of the things we look at from a quality aspect.

What I've seen at Muskrat Falls – and, Ken, I'll go back to you when you were there – no, things did not change after you left. It maybe got worse. And it was at all levels. Not only in the personnel out in the field, you know, supervising the work or whatever, but also from the, you know, the staff aspect within Astaldi. And I'll only speak towards Astaldi here as well. But when you see people arriving on site and not knowing who these people were or why they were coming on site, what positions they were, you know, coming to fulfill, that was alarming.

And when you also see the relevance of common last names, okay, just appearing, you know, suddenly on the org chart – you know, people coming in as junior field engineers or junior cost engineers or whatever, and then within, you know, a month they were superintendents out in the field having no relevant experience to that aspect. You know, piping and mechanical positions being filled by people who had absolutely no experience in that aspect, no certifications but simply because of who they were, okay, and who they knew in a higher-level position, you know, within the Astaldi organization.

And that was very alarming. And, you know, you were – if you voiced your opinion in that aspect, you were kind of put on the list and you didn't fit well within the group, okay? And Astaldi did have a group, and if you were not in that group, you received no advantage. And those people received advantage. And this was very, you know, alarming to a lot of us as experienced individuals who – you know, I grew into my career from the bottom, okay, as a trainee. And I had to earn my way based on, you know, my experience and exposure to different aspects of the work. And so you can see why you would have failures, you know, in certain disciplines simply because you do not have the supervision and the people who are competent to do that work.

And, you know, as part of quality management as well, and being, you know, a certified, you know, auditor with respect to all components of the ISO system, one of the first things we look at is the competencies when we do an audit. When we come in and perform an audit on an organization, we will ask for your competency records. That includes your résumés of your key personnel, right?

Your training record – your training matrix as to how, you know, these individuals, their training records – how you have trained them since they come on the site – and the evaluations of these individuals as they assume a role and as well how they progress in that role, you know? And

this is how you gauge, you know, the competency of these individuals.

And Astaldi was very poor in managing that process. And it came from the top down, okay? And project management has to assume that responsibility. And I will say that Astaldi received an F when it came to, you know, how they managed their personnel on-site, who they brought on-site and the reasons why they brought them on-site.

MS. O'BRIEN: Okay. Now, just briefly, Mr. Cavaliere, I'll go to you because obviously you were working there and would have – is this consistent with your experience? Or do you have a different experience?

MR. CAVALIERE: No, it's exactly what Ed is saying. I think that ultimately, if you're going to be a supervisor or a foreman, you should know what you're doing and you should be able to express your fault if there's mistake. You see a mistake you go to your foreman, to your GF, tell them what's going on. And I think we could do it this way, we could do it that way. We could maybe go faster if we look like this or like that, you know what I mean? And that's what your – your experience, you can go that way. But where we're working now, Muskrat, it doesn't happen.

The foremen there, they're all handpicked by the general foreman. Most of them are family, I'd say. If they're not, they're distant cousins or whatever.

Again, who do you blame? I can blame Astaldi. You could also blame – how you say – labour relations. That when they got hired as a foreman, they got you off a résumé. They got to make a couple of phone calls, see if it's true what you're saying.

And when I've worked with bigger companies – SNC-Lavalin – believe me, when you put in a résumé, they call. They ask for three references, they're gonna call them. They're gonna say how is this guy Larry? Oh he's a hothead man, but he knows what he's doing. That's good enough. So, like, I got hired, I worked overseas. I mean, not everybody can go work overseas if you're – you know, if you're really – if you're that bad. I mean, you have to have some good qualities.

And, you know, that's what it is. And Muskrat Falls, I think that part of it, non-existent. You're foreman because you know this guy, you're this because you know that guy, you're that – and it works like that. I – the union, I know for a fact, has not sent in one foreman at Muskrat Falls. They were all hand-picked by Astaldi and that's a fact. I'm not – this is – the union told me this, in fact, the union president. Well, we did not send one foreman out of our pool of people. They were all hand-picked by Astaldi.

MS. O'BRIEN: Thank you.

The next topic I'd like to talk about is Nalcor's oversight of contractors and I'll probably just speak to Mr. Knox and Mr. Snook about this.

So one of – you know, one of the aspects that the Commissioner is looking at is Nalcor's, you know, oversight of the contractors it hired and I'd like to get your thoughts on that. You know, was it good oversight? Was it lacking in some areas? Was it, you know, a combination of good and lacking? Just – whatever your views are on that.

MR. E. KNOX: Well, it would depend on the situation and the scenario and, you know, the contractor – the subcontractor relationship.

Overall, I would say it's a mixed bag of tricks, I call it. You know, from an Astaldi standpoint, I would say that we were very well-monitored by the owner. Almost to the extent you would say as being over-monitored, right, and being put on a much higher pedestal of expectations, you know, as to what we had to do as compared to other subcontractors who were working on site.

And this view and the opinion is not only shared by myself, but also had been communicated to me by the actual quality professionals who resided within the Nalcor organization and made those comments to me – is that, you know, the level of oversight seems a lot higher with respect to Astaldi. Now, as to the reasons why, I cannot speak to that but I can only assume.

But with respect to the other subcontractors on the part of Astaldi – because we obviously had to subcontract out portions of our work as well for the pre-cast installations on the powerhouse, for the structural steel and installations on the

powerhouse, so on and so forth. You know, again, when we went looking for a lot of these subcontractors to perform that work, you know, we had to ensure that they had an adequate quality management system in place as a part of the monitoring.

And all – most, I won't say all, but the bigger contracts, especially with Supermétal as the supplier and fabricator for the structural steel, you know, they're a very large fabricator. That's not the first powerhouse that they've built, you know, with respect to structural steel. And they've been involved in a lot of large hydro projects. So you would expect and assume that they are more than qualified to perform this type of work because nothing was out of the norm with respect to what we were asking them to fabricate.

But the level of oversight that was provided by the owner was, in my opinion and in the opinions of a lot of others on site, was exorbitant. And, you know, from a contractor standpoint, yes, we had to ensure that the subcontractor does have adequate QC, you know, processes in place for their fabrication. And Supermétal did. You know, they had an ISO-approved system. They had their inspectors and everything there on site. They had third party inspectors on site. They had the CWB registration; their engineer served on the board of the Canadian Welding Bureau. The experience within that organization was quite significant. And, you know, their two presidents, as well, was very well, you know, known and respected.

Yes, we had some issues during the fabrication, you know, during various aspects of the fabrication process. You know, we tried to deal with this as best as could, as a contractor, as a subcontractor and especially with the engineering input from their CWB-certified engineer. And in a lot of cases the resolutions to these issues were exactly what that CWB inspector had proposed in his non-conformance reporting process.

MS. O'BRIEN: Okay.

MR. E. KNOX: But a lot of these things were, because of the oversight from the owner, in our opinion – when I say "our," on the part of the Astaldi and the Supermétal, you know, contractor – was excessive, and resulted in delays in fabrication and delivery of the fabricated product to site.

MS. O'BRIEN: Okay.

The relationship between an owner and a contractor is always gonna be a complex one. In some ways they have, obviously, different and competing interests on many fronts. But ultimately they're united in one goal. They both want, you know, both the contractor and an owner want to ultimately have a successful project execution. So we know there's always gonna be some tensions in that relationship, but also that that relationship can benefit a lot from teamwork and working together and solving problems. Because I don't think anyone is operating under the idea that you can do a big project like this and not have major problems. You're going to have problems that come up, issues that need to be solved and often – you know, if ultimately, everybody wants a successful outcome, one of the best ways you're going to get to that is by working together, recognizing that you have different interests and you have to be protective of what your side's interest is at the same time. So it's always going to be a balance.

I wanted to get your views, Mr. Knox. In terms of that type of interaction with Nalcor and, you know, your experience with Astaldi, how did that relationship work?

MR. E. KNOX: In the site – on the site environment itself it worked really well. We went through a couple of quality, I guess, leads or managers, as Nalcor would call them, on site. But the overall relationship between the Astaldi QC team and myself, with respect to Nalcor's interactions on site and the team they had, were – was really good. We had the, you know, a really good communication and when it came to sorting the issues on site it worked well.

The problems we had, in a lot of instances, that the decisions being made on site in more than one occasion would be overturned by an engineer or somebody else off-site working with SNC-Lavalin or from the St. John's office or from the project management side itself. And this sometimes was disconcerting and, you

know, troublesome from us because we were trying to progress the work and we have the solutions in play on site, but then those solutions would be pushed and delayed from input off-site.

MS. O'BRIEN: Okay.

So taking a little longer to get to a resolution and sometimes a different – what was agreed to on site would not ultimately be approved in St. John's or (inaudible).

MR. E. KNOX: Exactly. We had numerous cases where we would receive a code-one or a code-two status. A code one would obviously proceed without any revision, a code two is revised and proceeding and a code three would be rejected, right, please resubmit. And in a lot of cases we would get the approvals on site – either code one or code two – and then, you know, a day or two or a week later, then we would receive a code three because somebody else reviewed it, you know, in Montreal, SNC, or in St. John's, right? And this was a common occurrence.

MS. O'BRIEN: And how does that compare with other projects that you're working – you've worked on?

MR. E. KNOX: In the majority of the cases the decisions were made on site. They had the actual engineer record on site who could make those decisions.

MS. O'BRIEN: Okay and what about in terms of the respectfulness of the relationship? I mean, I know that, no doubt, people are working in stressful situations. Everybody – every day is not going to be everybody's best day but, you know, generally, I would expect there's a standard in the industry that's expected in terms of the respectfulness of the relationships and the communications. Was that what you would expect from other projects you've worked on?

MR. E. KNOX: Yeah, exactly. And, like I said, construction sometimes people will get heated. You know, you will have heated disagreements across the table, but you respect each other's opinions. From the site side of things, you know, with the numerous meetings that I was involved in on the Astaldi and the client side, you know, there was respect, you know, at certain levels, okay, on the job site.

There was also a lack of respect on certain other aspects, okay? From the project management side on both levels, okay? And I will say on the Astaldi side as well as on the Nalcor side. The interactions between the two sometimes made things very difficult for others. And when I say interactions between the two, I would say between our project manager and the Nalcor group project management.

And I also have been a witness in meetings where, you know, I've been involved in meetings from a quality aspect and very little respect shown to other people sitting around the table by a certain individual within the Nalcor regime. And this was not a one-off; this happened on numerous occasions. And it was the type, do as I say or else-type scenario and it was almost as if you were being bullied. And, you know, sometimes, you know, people will sit back and take that and others speak out against it and, you know, obviously if you sometimes spoke out against it, you were reprimanded.

And it's – I don't work well in that type of environment where, you know, your opinions are not respected. And in a lot of cases, the opinions that were being offered were solutions to try and help the project to mediate certain ongoing issues and to move the schedule. And, you know, in a lot of cases for me, it was evident that there were delays being imposed, you know, by upper management within Nalcor from that aspect.

And, like I said, this was not a one-off situation and being there for the period of time I was and for the duration that I was there, some of these same individuals were there for the same duration. And I can see why that you would have such impacts as we see now.

MS. O'BRIEN: Okay.

And in terms of just to get the level of the position that you're talking about there, when you're talking about – I think you were saying someone specifically was particularly disrespectful or I think you used the word, bullying, I believe, did you? The – is that

someone – you know, how high up are we talking about here?

MR. E. KNOX: That would be an individual who would probably be considered as a site manager-type scenario, pretty much based out of the St. John's office with periodic visits to site.

MS. O'BRIEN: Okay.

MR. E. KNOX: Not somebody who was fully engaged at the site level.

MS. O'BRIEN: Okay. So this is someone very senior, the most senior person on that component, is that …?

MR. E. KNOX: Exactly.

MS. O'BRIEN: Okay, all right.

I'd like to get your comments on that, Mr. Snook. Your experience may be very different than Mr. Knox's but we're, you know, still very interested in hearing it.

MR. SNOOK: What time do you want to go for lunch?

MS. O'BRIEN: Oh, we – I'm planning to wrap up very soon my direct examination so I will ask you to be brief.

MR. SNOOK: Okay, not a problem at all.

So to speak to Ed's point there about the NCR process, for example – so, yes, on all fronts, all faces of the project, especially over the last three years, for example, is that the whole project was well behind, every component. So our tensions were high, a lot of stress on a lot of individuals, right? There was that feeling, I would say as well – I know inside of our project office as well of a lack of motivation. It was beat down over time. How is that?

But now when it comes to the NCR process, for example, right, so for – the project didn't issue its – its own internal procedure of how to handle NCRs until around June or July of 2016, so three years after I had joined the project. That's quite a considerable amount of time. Contractors such as Astaldi, GE, Barnard-Pennecon – whoever – they would need to know clearly what those requirements are because, again, depending on the package they may alter. But at the end of the day if it's a deviation against code, standard, project specification, approved drawings by the project is that the engineer of record would have to sign off on that.

So for the conversations with regards to a fix, a solution should definitely happen at the site level because they're there, they see what the issues are; however, either at the same time or shortly there afterwards that same conversation should be held with the engineer of record as well, so that that path can be set in a timely manner. Otherwise you're going to impact your costs, your schedule, the morale. Nobody is going to want to come with an answer then, for example, right, especially if they're unaware of what the rules are, right?

So with regards to contractor oversight, it was a mixed bag, I'll use that term. So we had – construction monitors outnumbered quality assurance personnel by about three to one, all right, but what was the oversight? Yes, so on all of my other previous projects – and still currently there as well – we have construction specialists. Same role as a construction monitor, they're here – they are there to help but they're also there to also observe as well. To make sure that the equipment is running. To make sure that the concrete is being placed. To make sure that the pipe is being erected in a timely manner. But, also, they're an interface as well with the construction crew on the contractor's side.

But, again, if they don't know – say for piping, for example – if they're all civil inspectors that have never installed registered piping before, they should not be there. If it's a linesman that is overseeing the installation of concrete for the GIS building, they should not be there.

MS. O'BRIEN: And was this something you actually witnessed? That there were people who were there doing the oversight or inspection who didn't have the right credentials or background?

MR. SNOOK: Yes.

MS. O'BRIEN: Okay.

MR. SNOOK: Yes, yeah.

So I witnessed it as well as for – our packaging engineers also witnessed it. We were very thin with electrical inspectors and with piping and mechanical as well.

So when I transferred over to the C3 side, one of the first questions I asked was: Where is your transition plan? And I was asked the question: What are you referring to? I said: Where is your transition plan for your on-site quality team? And he said: Well, I don't know what you mean. I said: We've been doing civil up until this point. You've already completed a majority of the structural steel now, are any of your guys certified for structural steel? Have they ever done this before?

We're going to start installing equipment. It's already arriving on site. Who's got a piping and mechanical background? He said: Well, we don't have a plan. I said: Okay, fair enough. Can I see the résumés? No. I said: Well, how can I lead a quality team if I don't know the background of the team? I can't because if Joe, Bob and Sue all have different strengths, I'll – I will build on those strengths, but I can't help if I don't know, right?

So how can we perform oversight if you've never done the work before? I can't tell you how to do your job because I've never done it before, right? The same thing for yourself there as well, right? So you would input individuals that do have the required background. Not saying that you have to lay off or fire, but you may have to rotate, move some people around, right? Because there was lots of work to be done all over the project, but on the oversight role you need the individuals on the contractor side – and on the owner side – that have that background because, again, going back to that point of you can't help if you don't know.

MS. O'BRIEN: Yeah.

And I understand that. Thank you.

I'm just going to go quickly now to one area with you, Mr. Snook, and I'll – we'll just spend a couple of minutes on it, but I know it's going to be an area where we're going to hear further evidence on in the course of Phase 2 and that has to do with the proud stranding issue on the –

MR. SNOOK: Mm-hmm.

MS. O'BRIEN: – HVDC conductor line, the wire itself, and we've heard a little bit of testimony on that topic already. But I understand that you have some direct experience there of – around the testing time of the HVDC conductor. You weren't there for the test but you were there in the meetings when the test results had come back and –

MR. SNOOK: Yes.

MS. O'BRIEN: – were being discussed. So I'd like you to please give the Commissioner your testimony with respect to that.

MR. SNOOK: Sure thing.

So, I was sitting in on the meeting for that particular package. At the time I was the inspection coordinator for it. So, of course, I was – thankfully enough, (inaudible) because there was a – it was a very good team there, to where we were getting ready to approve the start of the manufacturing, which means that we were getting ready to also assign the third-party oversight as well – or the third-party inspector.

So, we were having a meeting. It was LCP for the project team for that package, which included myself, the – (inaudible) contract administrator – and the package engineer is there as well, with the contractor. And they had submitted over the type test results.

So, what a type test is, is that if you're producing a commodity for the very first time, is that – you need to be able to prove that you, as the manufacturer, have the abilities to produce that commodity. Now, also, if it's a brand new design, again, you have to be able to prove that that design works before you start the manufacturing process. Now, a copy of that type test report should be available in the Aconex system.

So, what was noted in that report, if I recall correctly, is that there was a stranding issue. Now, it was discussed. It was decided that the issue was the result of the clamps, if I remember correctly, at the end of the sample section. So, not knowing much about the conductor at the time, I asked a question, because if I don't

know, I ask. You have to or else you'd never learn: Is this acceptable. Is this the norm? Are we okay with that? Yes, we're okay with that because of the following reasons. Are you sure? Yes. Do we need to do a re-test – because we can. No, I think we'll be okay.

MS. O'BRIEN: And so it was passed through that. And we will get more evidence on that later on. Thank you.

Commissioner, we're just about at the lunch break, but if I could just take another couple of minutes – I have one area I'd like to cover with Mr. Cavaliere and I'll do that now. And I wanted, at the end of my direct examination, to give each of these men an opportunity to ensure that they'd given to you all the evidence they felt was important, but I think it makes more sense for me to do that in my redirect because they – a lot more evidence will probably come out in the cross-examination today and I don't want to be repetitive. So I'll just do this one last area.

Mr. Cavaliere, I know you have worked in Quebec as well as in this province, and you had some comments with respect to the collective agreement and how that works in Quebec. And for other work we're doing, it would be just helpful just to get a few – just a few minutes from you –

MR. CAVALIERE: Yeah.

MS. O'BRIEN: – on how that works in that province.

MR. CAVALIERE: In the province of Quebec their construction industry is governed by the Commission de la construction du Québec – CCQ it's called, an acronym – and they oversee all the construction industry in Quebec.

It's run by the government. They say it's not the government but it is the government. All the collective agreements are signed when they issue, and most of them – they all issue at the same time. So whether you're a carpenter, a pipefitter, electrician, (inaudible) operator, any kind of – has to do with construction, the Commission, – la Commission – they're the ones that negotiate with the unions.

And there's not one union; there's four or five different unions. Every union has multiple trades in it. Like, the carpenter union – like, the international union, you could be a carpenter; you could be a (inaudible) buster; you could be an electrician, and you can be any trade you want in that union.

And then there's the FTQ, which is la Fédération des travailleurs du Québec, which is another union, and they have all kinds of trades there, too. But the – it's not one union per trade like here. Like, IBEW is electrician only, and carpenters are – carpenters and millwrights only. See, if you're a labourer, you can't join that union; you have to join another union. But in Quebec, the unions are all – they have all the trades in them.

So when it comes time for negotiations, it's not done by project, the whole province is under one umbrella. So if you're a carpenter in Montreal – a former carpenter – and you make, I don't know, let's say $30 an hour, and you're a former carpenter in Quebec City, you make the same money. And if you go in the North, you get a – how did you say it the other day? You get an –

UNIDENTIFIED MALE SPEAKER: Isolation.

MR. CAVALIERE: – isolation bonus. And it's already dictated to you, there's no negotiations. What's your rotation? Oh, rotation's already been negotiated from the government.

If you go work far away in a camp, it's three weeks on, one week off and that's what it is. There's no – unless you work out another agreement with your boss, you need less time, well, that's different. But on the general scope of it, it's already been dictated to you. There's no – and not every job has a different collective agreement; it's under the same agreement for everybody.

MS. O'BRIEN: And I understand with respect to – there's no general foreman and all foremen do work. Is that –?

MR. CAVALIERE: No, yeah, exactly. I mean, that's for the contractor himself, how he wants to put his – how he wants to manage his team. But most of the people that I've always worked

with, there's a foreman and he takes care of 10 guys. And after that, if you need more – if you have – if you want to have more oversight – the contractor wants more oversight, he'll put an engineer to help the other two or three foreman in case they have problems. You go see this engineer and that's the way I always worked with it. I mean, usually, like – or a junior engineer or an engineer, and the guy would have four or five foremen with him and and the guy – if you have a problem, you go see him. And you need this drawing, you need that drawing, he'll pull it out for you. Or they ask for schedules, you know, they ask, Larry, what's your – what do you think you're gonna do this week?

So you have your input with this boss, which wouldn't be your boss – would be, like, this engineer and you tell him: Well, this is what I plan to do this week and this is what I have in my organizational chart. I'm gonna put this guy there, that guy there, and we're gonna work it out. And he would come up with the schedule for you, and then he'd give it to you and say: Does it make sense? And then he say, oh, no, this doesn't make sense; this – I need more time there and (inaudible).

And then you – that's what – there you have your input to the schedule. (Inaudible) – it's not a guy in the office making the schedule for you; it's you who's making it – your schedule, and giving it to the engineer and the engineer will bring it up to the planner so he can put his input and say, here, this is what we're gonna do.

MS. O'BRIEN: And are – do all foremen have the ability to work, or are there some non-working foremen, or –?

MR. CAVALIERE: You're a foreman, you're allowed to work. You – because to be a foreman, you have to be a carpenter. You have to be a trade – a certified trade. If you're an electrician, you have to be a certified electrician then you could be foreman. You cannot put a labourer as foreman. I'm sorry. You cannot put a second-year or third-year apprentice as a foreman.

MS. O'BRIEN: Okay.

MR. CAVALIERE: He'll lose all respect from the other people.

MS. O'BRIEN: All right, two other things. I just wanna – do you note any difference in the safety culture in the Province of Quebec versus other areas where you (inaudible) –

MR. CAVALIERE: Well, the safety culture is probably more aggressive now in Quebec than it is here.

MS. O'BRIEN: Okay, so it's –

MR. CAVALIERE: Yes, because, you see here, the 10-foot law from the federal – from the provincial government? In Quebec, it's five – four foot.

MS. O'BRIEN: And has that been a recent change in Quebec?

MR. CAVALIERE: No, it's been there for a while.

MS. O'BRIEN: Okay.

MR. CAVALIERE: And that, like, lanyards – there's no such thing as a lanyard of six foot in Quebec; it's a four-foot lanyard. There's different, you know – but I mean, you know, I haven't worked in Quebec in a couple of years now – about 10, 12 years.

MS. O'BRIEN: Okay.

MR. CAVALIERE: I'm not exactly – I'm sure of what I'm saying, but I mean, I know that the culture now – every job has to – like I was telling you – every job now has to have a safety plan, a safety coordinator, a safety officer. It's –

MS. O'BRIEN: Okay.

MR. CAVALIERE: – the norm now. It's like every job. Even when you're doing a small four-storey condominium, you got to have a safety officer.

MS. O'BRIEN: Okay.

And the last area I just wanted to go to – we're gonna hear more evidence later on about composite teams and how that all worked on the Muskrat Falls site, but I just wanted to get, from your experience in Quebec, because the unions have multiple trades in them –

MR. CAVALIERE: Yeah.

MS. O'BRIEN: – does that have an effect on how – you know, the flexibility of carrying off jobs on the site –

MR. CAVALIERE: (Inaudible.)

MS. O'BRIEN: – or is it still, you know, quite – or is it very strict? You know, a labourer does a labourer's job; a carpenter does a carpenter –

MR. CAVALIERE: No, it's – I think it's more relaxed. I mean, if you're a labourer with a certification to drive a telehandler, you drive a telehandler. It's not that, oh, this part of the job is given to these guys, no, no, no. If you're qualified – if you have the paperwork that you're qualified to drive something, you drive it. You know, and I'm – personally, I'm a certified rigger. All I do is rig; I can't signal the crane. In Quebec, I'm a certified rigger; I do what I want. I have my radio; I signal the crane; I load up my load; I bring it there. I do what I want. I don't have to go ask this guy, like it is here, the – oh, he's got the handling of the cranes, and I just rig it up, and they fly it.

In Quebec if you rig it up, you'll fly it. You'll take the radio and you'll talk to the guy on the tower crane or on the crane and say, well, I want to go there. I mean – know what I mean – and you got into her, you got to go.

MS. O'BRIEN: Okay.

MR. CAVALIERE: You'll be in direct control of that. I was saying you don't have to – just one guy doing this and then every guy doing that. It doesn't work that way. You do the whole procedure.

MS. O'BRIEN: Okay. Thank you.

Just – it was helpful to get some comments –

MR. CAVALIERE: Okay.

MS. O'BRIEN: – on how – obviously, every jurisdiction has a different approach.

MR. CAVALIERE: Yeah.

MS. O'BRIEN: And so I just wanted to cover that off. This is a good time to break for lunch.

Thank you.

THE COMMISSIONER: All right, so we'll take our lunch break now and come back at 2 o'clock.

CLERK: All rise.

Recess

CLERK: All rise.

Please be seated.

THE COMMISSIONER: Right.

MS. O'BRIEN: Thank you, Commissioner. I am going to take my – this opportunity to give – go through each of the panel members and to ensure that they've covered all the points that they wish to in their direct examination today prior to them commencing cross-examination.

So I'll just start from one side of the table and work my way down. Mr. Cavaliere, is there anything that you – evidence you wanted to ensure that the Commissioner heard that you didn't already get an opportunity to address today?

MR. CAVALIERE: No, I think I covered (inaudible) all the bases I wanted to cover about safety and environment – work environment. Yeah, the atmosphere at work is not – is a poison atmosphere and I think I came across pretty good.

MS. O'BRIEN: Thank you. Mr. White?

MR. WHITE: No, everything is good. I think it's been covered very, very well and so far, so good.

MS. O'BRIEN: Okay, thank you. Mr. Snook?

MR. SNOOK: I just wanted to reiterate is that we did have a lot of good individuals on the project that wanted to do a good job. They were there to do a good job. However, with the set-up, with the direction, they weren't offered the opportunity.

And there was definitely a lack of focus on quality. There's no doubt about it. And in good project management, then, you're going to have a spinoff. It will cost you schedule; it will cost you in cost as well. So, that's all.

MS. O'BRIEN: Thank you. And finally, Mr. Knox?

MR. E. KNOX: Yeah, I'll just second what Perry said there as well. I mean, we had a lot of talented individuals who were working on the job as well. But, again, you know, the majority of the issues were directly associated with management and upper-level management from both sides.

Thank you.

MS. O'BRIEN: Thank you very much. And I know some of my colleagues will certainly have questions for you.

THE COMMISSIONER: All right. Government of Newfoundland and Labrador?

MR. LEAMON: I have no questions, Commissioner. Thank you.

THE COMMISSIONER: Sorry?

MR. LEAMON: I have no questions, Commissioner. Thank you.

THE COMMISSIONER: Oh, thank you. Nalcor Energy?

MR. SIMMONS: Good afternoon, gentlemen. Dan Simmons for Nalcor Energy – just a few questions for you. But first of all, thank you for being willing to do this and bring your views to the Commission. I'm sure the Commissioner appreciates it as do many of the other people here.

So, I have a couple of general questions first, and these are probably more for Mr. Cavaliere and Mr. Knox 'cause they relate to – your evidence has – much of your evidence has been about the powerhouse and spillway contract, CH0007, which was awarded to Astaldi and that work.

And first of all, Mr. Cavaliere, am I saying it right? Cavaliere?

MR. CAVALIERE: Yes, it's Cavaliere.

MR. SIMMONS: Yeah, I'll put this to you first. You have a lot of experience working on different sites and different – under different contract arrangements, I presume.

Generally, though, it is – am I correct in saying that it is generally the owner who specifies the work – what the work product is to be? They describe what it is that's supposed to be built and generally, when a contractor takes on the job, the contractor then becomes responsible for the detail of how they're going to build it.

MR. CAVALIERE: Yes, that's how usually it is.

MR. SIMMONS: That's the way usually it –

MR. CAVALIERE: Usually it is.

MR. SIMMONS: – would work, that's right.

And Mr. Knox, does that fit with your experience as well as the way these things tend to go?

MR. E. KNOX: Yeah, usually that is: you get the specifications, everything from the owner, from the designer –

MR. SIMMONS: Right.

MR. E. KNOX: – but, you know, the design itself comes from the – the owner. So when we talk about what we're going to build with respect to the issue for construction drawings and all the specifications directly from the owner or the owner representative, in this case it was SNC-Lavalin –

MR. SIMMONS: Right.

MR. E. KNOX: – and then the methods and means of how to build the work is on the contractor.

MR. SIMMONS: Right.

Well, you've anticipated my next question already which was to ask about this term "methods and means" or "means and methods" because I've heard of that in connection with these contracts and others. So maybe Mr. Knox you could give me a bit of a description of what – of what that concept is, about the contractor having the responsibility for the means and methods of the work.

MR. E. KNOX: Well, basically it's very simple, I mean, once you have the plans and everything else to build the work, then you have to resource the job appropriately and that includes: putting plans in place for – schedules in place, resourcing for manpower to meet that schedule and usually it's a baseline schedule that's submitted early on in the project.

MR. SIMMONS: Okay. So in the schedule you're talking about now, this is the contractors schedule for how they are planning to achieve the work in order to meet the requirements of the contract. Is that – is that what you're –?

MR. E. KNOX: Exactly, and approved by the owner.

MR. SIMMONS: Right.

And, Mr. Cavaliere, do you add anything to this idea of means and methods?

MR. CAVALIERE: Um.

MR. SIMMONS: And what the contractor's role is in relation to that?

MR. CAVALIERE: The contract – the contractor's role is, like Ed said, it's a mean how to do the work and everything, but the client also has an input on the means. That's the client that deems that one of your procedures is maybe flawed or you can accelerate –

MR. SIMMONS: Mm-hmm.

MR. CAVALIERE: – the procedure –

MR. SIMMONS: Mm-hmm.

MR. CAVALIERE: – the client has – could put his input in and say: If you do it this way or do it that way –

MR. SIMMONS: Right.

MR. CAVALIERE: – you could save on time or you could not save on time.

MR. SIMMONS: Right.

MR. CAVALIERE: And coming down to the manpower, that's another one with the scheduling, you know, manpower with the work you're gonna be doing –

MR. SIMMONS: Mm-hmm.

MR. CAVALIERE: – has to match.

MR. SIMMONS: Right.

MR. CAVALIERE: And that's a client's obligate – I get – to me, it's an obligation to the client that it fit, I mean, you know, if you have too many people there, they know, I mean, it's like, you know, if you're going to pour some many metres of concrete, here's my schedule, this is what I'm going to pour every week or every two weeks –

MR. SIMMONS: Mm-hmm.

MR. CAVALIERE: – and it should work if the matchup there, but if there no schedule – realistic schedule –

MR. SIMMONS: Mm-hmm.

MR. CAVALIERE: – I mean, schedule is always there but realistic schedule, it doesn't work.

MR. SIMMONS: Right. Yeah.

But am I correct that generally it is the contractor that has – has the role of working out how many workers they need in order to achieve the production that's –

MR. CAVALIERE: Yes.

MR. SIMMONS: – to be achieved.

MR. CAVALIERE: Yes.

MR. SIMMONS: And they have to plan. So when, in your evidence, you're talking about the lack of organization on –

MR. CAVALIERE: Yes.

MR. SIMMONS: – the powerhouse –

MR. CAVALIERE: Yes.

MR. SIMMONS: – the spillway job – that's lack of organization on the part of the contractor in organizing its work in order to achieve the schedule, is it?

MR. CAVALIERE: Exactly.

MR. SIMMONS: Yeah. Okay. And you had some – this – I'm going to bounce around a little bit –

MR. CAVALIERE: Yeah.

MR. SIMMONS: – in some of these questions. You made some comment, I think, gentlemen – one of you about the tools and the availability of tools –

MR. CAVALIERE: Yeah.

MR. SIMMONS: – on the site. So, on this project, whose responsibility was it to supply workers tools – was that the owner, Nalcor, or the contractors like Astaldi or the workers themselves? Mr. Knox, you're leaning ahead there –

MR. CAVALIERE: Go for it, then.

MR. E. KNOX: I mean, the tools to perform the work, depending on the scope of work, obviously, is the responsibility of the contractor.

MR. SIMMONS: Mm-hmm.

MR. E. KNOX: And this is usually built into the contract when you're tendering it. Okay? And, but as well, you have to have the ability to manage, you know, your tools, and that was one of the biggest issues with respect to Astaldi – was their ability to put things in place to ensure that the workers had what they needed and to manage those resources that were available.

MR. SIMMONS: Right.

And you've both also given some evidence about supervision –

UNIDENTIFIED MALE SPEAKER: Yeah.

MR. SIMMONS: – the importance of good supervision on a job like this, and am I correct that on the powerhouse spillway contract, this – the choice of who the supervisors would be – foremen, supervisors, superintendents on up – that was a contractor role and responsibility to select those people, was it? Mr. Cavaliere?

MR. CAVALIERE: It is the contractor's responsibility, but if I'm not mistaken Nalcor has a say –

MR. SIMMONS: Mm-hmm.

MR. CAVALIERE: – who Astaldi hires.

MR. SIMMONS: Yes.

MR. CAVALIERE: Nalcor could also verify. They can ask for references or CVs –

MR. SIMMONS: Mm-hmm.

MR. CAVALIERE: – from Astaldi saying – well, you've got to put this guy and that one. Nalcor has the power to do it. They didn't, I guess, they didn't do it. They didn't emphasize that part of the contract that they had the power to do.

MR. SIMMONS: Well this is something we may hear more about as –

MR. CAVALIERE: Yeah.

MR. SIMMONS: – we move through, but I'll tell you my understanding is that at the more senior levels –

MR. CAVALIERE: Yes.

MR. SIMMONS: – Astaldi – sorry – the owner, Nalcor, may have had a right to –

MR. CAVALIERE: Yeah.

MR. SIMMONS: – approve who would go in there. And also in many of the contracts they had a right if they wanted someone removed from a position. They could –

UNIDENTIFIED MALE SPEAKER: Yes.

MR. SIMMONS: – does that sound familiar?

MR. CAVALIERE: Well, I'm going to question you now –

MR. SIMMONS: Okay.

MR. CAVALIERE: – okay?

MR. SIMMONS: I won't guarantee I'll answer.

MR. CAVALIERE: Oh, yeah, well, I know that Astaldi, at one point –

MR. SIMMONS: Mm-hmm.

MR. CAVALIERE: – had three managers there – not one guy spoke English.

MR. SIMMONS: Mm-hmm.

MR. CAVALIERE: Okay? I'm fortunate enough to speak Italian –

MR. SIMMONS: Yes.

MR. CAVALIERE: – and I ended up speaking for them –

MR. SIMMONS: Mm-hmm.

MR. CAVALIERE: – several times and translating for them. Nalcor approved these managers, I think. Am I right or am I wrong?

MR. SIMMONS: Well, I can't answer that –

MR. CAVALIERE: You can't answer that question.

MR. SIMMONS: – question for you. No.

MR. CAVALIERE: Okay. Well to me it's like –

MR. SIMMONS: Well, we might hear more later.

MR. CAVALIERE: Yeah.

MR. SIMMONS: All right.

So Mr. Knox, anything to add on that issue about –

MR. E. KNOX: Yeah, I'll just –

MR. SIMMONS: – choice – selection of supervision?

MR. E. KNOX: – speak a little on that.

MR. SIMMONS: Yes.

MR. E. KNOX: But basically, all key positions were submitted to Nalcor for review and approval as required.

MR. SIMMONS: Mm-hmm.

MR. E. KNOX: So, other positions, middle management and below as well as craft supervisory roles were not.

MR. SIMMONS: Yeah, they would be of contractor selection?

MR. E. KNOX: Yeah.

MR. SIMMONS: Okay.

Now, I understand as well that we've spoken a bit about the problems with productivity on the site at the outset and probably through 2014. And we've heard through other evidence that by 2015 there was a bit of a turnaround in Astaldi's work. Mr. Knox, you are nodding your head.

And I understand that, as part of that, Nalcor had in fact intervened by that time and had become involved in trying to improve the productivity and help organize the work site. So Mr. Knox, can you tell me anything about that? 'Cause you would have been in there as a quality – in your quality position at that time. So, what can you tell me about what happened in 2015 – around (inaudible)?

MR. E. KNOX: I guess a lot of it comes right back to – the overall message that we've been sending out here is the lack of planning –

MR. SIMMONS: Mmm.

MR. E. KNOX: – you know, on the part of Astaldi. And so at that time, yes, Nalcor did intervene and they sent two personnel directly to Astaldi. I'm not sure the politics behind it or anything else, but you know, we woke up one morning and now we have two ex- or seconded, you know, Nalcor employees now as construction managers.

MR. SIMMONS: Right, so they went into construction manager roles, did they?

MR. E. KNOX: Yes, so they were directly involved in the powerhouse and the spillway operations for the actual planning of the concrete works – so, sequencing of the work. And they worked directly in conjunction with the scheduling department within Astaldi.

MR. SIMMONS: Mm-hmm. Okay.

And did you see any results from where you sat as a result of that change?

MR. E. KNOX: Yeah, I mean, that's – yes. You're seeing immediate results with respect to how things were being delivered. When I say that, it's the planning aspect, the meetings, you know, the communications within the department.

But again, this goes right back to the fact of having people who had experience on previous jobs, right – previous projects – putting them in this role to help with the organization, and it did help. But that only lasted for a short time until those individuals again left and – yes, so that may be something that the circumstances around their departure would be another topic.

MR. SIMMONS: Mr. Cavaliere, anything to add about that time frame –

MR. CAVALIERE: Oh, yeah, in my role –

MR. SIMMONS: – in 2015?

MR. CAVALIERE: Back then in '15 I was just a carpenter.

MR. SIMMONS: Mm-hmm.

MR. CAVALIERE: I really wouldn't be able to tell you …

MR. SIMMONS: Mmm.

MR. CAVALIERE: I mean –

MR. SIMMONS: Okay.

MR. CAVALIERE: – yeah, okay, productivity went up, yeah, I have to admit but, I mean, why?

MR. SIMMONS: Mmm.

MR. CAVALIERE: It's telling me now. I mean I've seen the people, I know who they are but, to me, like …

MR. SIMMONS: Okay. Good. Thank you.

And, Mr. Knox, one other point in there – we may hear more evidence about this as well – that there was other interventions in that time period as well, including bringing in a consultant from an outfit called Ibbs to look at productivity and that. And I don't know if you were involved in that or had anything to do with that?

No? Okay. Thank you.

Mr. Snook, a few questions for you.

MR. SNOOK: Yes.

MR. SIMMONS: And you've described for us a series of different quality issues –

MR. SNOOK: Yes.

MR. SIMMONS: – and many – some of those may be followed up further by Commission counsel in other evidence, but I just had a few questions for you about some of them.

MR. SNOOK: Sure.

MR. SIMMONS: You told us about quality inspection on the work on the turbines in China.

MR. SNOOK: Yes.

MR. SIMMONS: So I believe that would have been work that was contracted to ANDRITZ –

MR. SNOOK: ANDRITZ HYDRO.

MR. SIMMONS: – HYDRO.

MR. SNOOK: Yes.

MR. SIMMONS: Correct? Yes. And that that was one of the contracts that was let very early because of the long lead time required to manufacture that equipment and get it delivered to make sure it was available on time.

MR. SNOOK: That's my understanding as well, yes.

MR. SIMMONS: Sound familiar? Okay.

Now, you were in the role of – I'll get the title wrong now –

MR. SNOOK: That's all right.

MR. SIMMONS: – quality –

MR. SNOOK: Inspection coordinator at that time.

MR. SIMMONS: Inspection coordinator.

MR. SNOOK: Yes, Sir.

MR. SIMMONS: Okay. Good.

And so – and if I understand, that in order to do the quality inspection on the work that ANDRITZ was having done in China –

MR. SNOOK: Yes.

MR. SIMMONS: – you had actually recruited a qualified person from North America and sent them to stay in China to monitor that work.

MR. SNOOK: No.

MR. SIMMONS: No?

MR. SNOOK: That individual –

MR. SIMMONS: Yes.

MR. SNOOK: – who was the quality coordinator for the package –

MR. SIMMONS: Yes.

MR. SNOOK: – was recruited and selected by the project itself.

MR. SIMMONS: I see.

MR. SNOOK: Yes, Sir.

MR. SIMMONS: Okay.

MR. SNOOK: My role would have been to locate, source the third party inspectors.

MR. SIMMONS: I see.

MR. SNOOK: Yes, Sir, yeah.

MR. SIMMONS: Okay. So those would be the Chinese inspection company that was hired in order to do it?

MR. SNOOK: Yes.

MR. SIMMONS: Yeah.

MR. SNOOK: In addition to one North American third party inspector with a background in turbines as well.

MR. SIMMONS: Right. Okay.

So these levels of inspection were in place –

MR. SNOOK: Yes, Sir.

MR. SIMMONS: – in China to monitor the work that was being done by ANDRITZ plants or –

MR. SNOOK: Yes.

MR. SIMMONS: – contracted plants. Okay.

So those inspectors in China, were they submitting regular reports back to the project on what they were observing while they were there?

MR. SNOOK: There were reports submitted back to the project, yes, Sir.

MR. SIMMONS: Yeah.

MR. SNOOK: I would review the reports at random because I can't look at all of the reports coming in through –

MR. SIMMONS: Yes.

MR. SNOOK: – for the content, for the quality of the reports. If I saw that something was off well then, of course, I would have a conversation with the quality coordinator when able and also with the quality manager –

MR. SIMMONS: Right.

MR. SNOOK: – as well.

MR. SIMMONS: So while you were playing a coordination role, you weren't primarily the one who assessed the content of these reports to determine if it was acceptable or not, were you?

MR. SNOOK: If I – at times I would, yes.

MR. SIMMONS: Mmm.

MR. SNOOK: I would look at the report and then, like, if I saw something that I felt was off well then, of course, I would pose a follow-up question.

MR. SIMMONS: Yes.

And so the – I'm guessing now that the primary responsibility for review of the content of inspection reports like that would rest with the technical people on the project who were managing that work, the engineers and contract –

MR. SNOOK: Yes.

MR. SIMMONS: – managers, is that –?

MR. SNOOK: It would be sourced out between multiple individuals.

MR. SIMMONS: Yes.

MR. SNOOK: So before the report came to the home office, for example –

MR. SIMMONS: Yeah.

MR. SNOOK: – the on-site, in-person LCP quality coordinator –

MR. SIMMONS: Mm-hmm.

MR. SNOOK: – who was based in China should be reviewing and approving that report before it comes back to the home office because, of course, they share the same office –

MR. SIMMONS: Mm-hmm.

MR. SNOOK: – they're there together. And then it would be the quality manager for that component, as well as the package engineer as well, because if there are issues, well then – for the package engineer also needs to be aware as well.

MR. SIMMONS: Right.

So all these processes were in place and carried through for the turbine contract.

MR. SNOOK: Yes.

MR. SIMMONS: And if I understand correctly, your concern that you've expressed was that the final package of quality documentation that's to be submitted by ANDRITZ was what hadn't been received before the turbines were shipped. Have I got that right?

MR. SNOOK: It was the submission of the quality package –

MR. SIMMONS: Mm-hmm.

MR. SNOOK: – as well as with the non-conformances which also were not being shared back with the home office.

MR. SIMMONS: Mmm.

MR. SNOOK: So, as a quality representative, there are times to where we can sign off on an NCR, but usually we do not sign off on the dispositions when it deviates from code, standard, project specifications or drawings.

We will, however, feed into the proposed disposition. So if there was a problem – so on my jobs right now, if my contractor have an issue, we will discuss it together. It – if it – if

that resolution requires engineering sign off, we will write it up together and/or we will also call the engineer in to discuss it as a team.

MR. SIMMONS: Yeah.

MR. SNOOK: Now, in this particular case, the design – the engineer of record is SNC-Lavalin.

MR. SIMMONS: Yeah.

MR. SNOOK: Not that SNC-Lavalin have to sign off on everything; however, at the end of the day they need to accept it. That's it. That's in the contract. They give the final blessing.

MR. SIMMONS: Right.

MR. SNOOK: And if they don't like it, what are you going to do with it?

MR. SIMMONS: So you left the inspection coordinator role in May of 2016, around there?

MR. SNOOK: 2016 I do believe.

MR. SIMMONS: Am I right about that?

MR. SNOOK: Just give me a sec. 2015 or 2016. I think it would've been about 2016.

MR. SIMMONS: I think you had additional duties added in 2015, I'd understood, and you –

MR. SNOOK: I did. Yes, Sir.

MR. SIMMONS: – kept that role until 2016.

MR. SNOOK: No, I left the project in, Sir – or I left the inspection coordination role –

MR. SIMMONS: Yeah.

MR. SNOOK: – in May of 2016.

MR. SIMMONS: In 2016.

MR. SNOOK: Yes, Sir.

MR. SIMMONS: So after that date, am I correct that you wouldn't have been in a position to be following what was happening with closing out NCRs on that contract or with submission –

MR. SNOOK: No.

MR. SIMMONS: – of further quality documentation?

MR. SNOOK: No, Sir, I would not have been involved in that unless I was approached for support.

MR. SIMMONS: Right.

MR. SNOOK: (Inaudible.)

MR. SIMMONS: Right. So today, you can't give us any current report on the status of any of those things?

MR. SNOOK: No, Sir, I cannot.

MR. SIMMONS: Okay. Good.

MR. SNOOK: But I can add – a further clarification point – is that – when the NCR started to come in at the end, so after shipment, for example – is that it drove the need to then develop the NCR process internally for the project because now you've already passed go, they've already shipped –

MR. SIMMONS: Mmm.

MR. SNOOK: – and the engineer of record has not accepted some of these. And there were a few major flaws here. There were some big defects here that were against code. So the engineer of record should've had the opportunity to accept or to reject it. It's not a quality coordinator's roles or responsibility to –

MR. SIMMONS: Right.

MR. SNOOK: – accept them.

MR. SIMMONS: So others would have to speak to that in order to give us the full story, I guess, on that.

MR. SNOOK: They would, yes, Sir.

MR. SIMMONS: They would, yeah. Including the current status?

MR. SNOOK: Yes.

MR. SIMMONS: All right.

Now, just similarly, you gave some evidence about transmission tower foundations and some problems identified with the concrete. Do I understand correctly that you weren't directly involved in that but that's information you gathered as you were preparing some form of– or helping prepare some form of summary reports?

MR. SNOOK: Both.

MR. SIMMONS: Okay.

MR. SNOOK: So I was assisting to develop the monthly matrices for that to where – then that information was shared –

MR. SIMMONS: What's that? Monthly matrices?

MR. SNOOK: Oh, it's – it was the monthly report that the overall quality manager would develop for the entire project.

MR. SIMMONS: Mm-hmm.

MR. SNOOK: So for that list, the NCRs, any large issues with the various components, for example, to share with the upper management team.

MR. SIMMONS: Mm-hmm.

MR. SNOOK: Now, also, due to my background as the inspection coordination, previously I was also asked to try to help source a concrete inspector that could travel the site to perform the inspection or the oversight of the core samples because it came to light after the fact, then it sat for a while – I assume it was being discussed internally – and then the action path was to travel the site, obtain samples, take those samples out for testing. But the collection of those samples, we wanted to have someone there to witness that, though, as well, to make sure that they were being taken, say for example, from the right tower, you know, and at the locations which were specified.

MR. SIMMONS: So that – and that's the sort of thing you would do as inspection coordinator –

MR. SNOOK: Yes, Sir.

MR. SIMMONS: – make sure that those things were in place to do that.

MR. SNOOK: Yes.

MR. SIMMONS: So, as for the analysis of the extent of the problem, if any, with the foundations –

MR. SNOOK: I was not involved in that.

MR. SIMMONS: – the resolution of it – not involved in that –

MR. SNOOK: No, Sir.

MR. SIMMONS: – and where you sit now, you don't know what the status of that is –

MR. SNOOK: No.

MR. SIMMONS: – if it's been resolved or if it's open.

MR. SNOOK: No idea.

MR. SIMMONS: Okay.

MR. SNOOK: I hope it's resolved.

MR. SIMMONS: Yeah. Okay.

And on the – you also gave some evidence on – touching on the selection of Alstom, which later became GE, as the contractor for the HVDC –

MR. SNOOK: Specialists, yes.

MR. SIMMONS: – compounds I'll call them – specialties there. Were you involved in the procurement process for those contracts?

MR. SNOOK: You mean the selection of Alstom as the –

MR. SIMMONS: Yes.

MR. SNOOK: – execution contractor?

MR. SIMMONS: Yes.

MR. SNOOK: No, I wish I was. No.

MR. SIMMONS: Okay. Had you – have you reviewed any of the bids, or the award contract evaluation and award documents or any of that?

MR. SNOOK: The post-award contract documents? Yes, Sir. Yes, I did.

MR. SIMMONS: Yeah.

MR. SNOOK: However, I was not involved in the selection process, nor –

MR. SIMMONS: Okay.

MR. SNOOK: – did I ever – I was unable to locate how they were selected.

MR. SIMMONS: Okay.

Mr. Knox, you had given us some evidence concerning Nalcor's quality oversight from your perspective with Astaldi, in particular to do with subcontractors. You mentioned Supermétal. And if I take it correctly, your view was that you viewed it as an excessive degree of involvement in quality oversight, over and above what you'd expect would have been appropriate for those contractors? Have I got that right?

MR. E. KNOX: Yes, in my opinion, and also in the opinion of the contractor themselves. And I think this may be exhibited as well in the claim that Supermétal filed against Astaldi for, I think, a total of $12 million. And one of the biggest cost impacts, according to Supermétal, was the excessive oversight on part of both Astaldi and Nalcor –

MR. SIMMONS: And Nalcor.

MR. E. KNOX: – okay? But the majority of their issue was dealing directly with the oversight from the owner.

MR. SIMMONS: Okay.

And now, Mr. Snook, I don't know the answer to this but was that quality oversight – did that fall within the purview of your role as the inspection coordinator, or was that something that was managed by someone else on the project?

MR. SNOOK: That role was passed over to another individual at that time. However, I was consulted on it.

One of the reasons – so, for one of the (inaudible) –

MR. SIMMONS: So, my question for you is going to be –

MR. SNOOK: Yes.

MR. SIMMONS: – to – for you to comment on what Mr. Knox has said because there seems to be –

MR. SNOOK: Yes.

MR. SIMMONS: – a difference between your views that in some cases, quality was not given – paid enough attention and Mr. Knox has told us an example where it seemed to be overdone so …

MR. SNOOK: Right. So the work –

MR. SIMMONS: If you can help us with that.

MR. SNOOK: Not a problem.

So as I spoke to earlier, the level of quality involvement did vary greatly amongst the components. For this particular component, there's a strong individual involved in it. Now, also, there was a history prior to the selection of Supermétal with regards to steel.

So for the very first point is that our contracts have an exhibit in there called exhibit number 7. And exhibit 7 are the quality requirements which outline these are the rights of Nalcor/the LCP project: We can come and visit, the ISO program, the ITP submittals.

Also involved in that contract as well is that if you decide – you, as the execution contractor – if you decide to sub out work, all of these articles from the contract shall also be transmitted over to your sub, including the quality requirements for the exhibit 7. To my recollection, all of these requirements were not submitted over. So, therefore, now you have a contractor such as Supermétal going: Wow, why are the owner here? We didn't know that they

were going to come. So, of course, that would create a bit of friction.

MR. SIMMONS: Mmm.

MR. SNOOK: Now, there were discussions with Supermétal. I did actually travel there myself. And one of our key concerns was the procurement of the steel. There was another contractor that we had used on another component of the project where we had in our contract: These are the approved materials suppliers. Not material distributors but the mills, the steel mills where that raw piece of plate comes from.

So our requirement was that these are the mills that you have supplied, these are the mills that we approve. You shall not use any other mill unless you apply and we approve. Now, not a very difficult task, it's just: Here are the mill certs, here is their – here are their ISO certifications for (inaudible) example.

So prior to the Supermétal scope taking place, there was another contractor for the C4 portion. They had procured steel from Eastern Europe. I actually think it was Russia because I had never seen an NCR like this one before. So it had raised some concerns.

We went and we collected samples for material testing and when we tested it, it failed. So then the fabricator had to reverse-engineer it. So this is one of the requirements. So for the steel at Supermétal, we had – we did have that restriction in there is that all steel shall be procured and supplied from North American or EU suppliers; anywhere else, you have to ask. But we also wanted the list of mills as well.

So this was one of the sticking points up front with Supermétal because it was an extremely large order of steel. This is not small beams, these are massive beams.

MR. SIMMONS: Mm-hmm.

MR. SNOOK: So that was one of the major sticking points up front because I don't think that they were used to it. One of the comments that were provided back to us – and we would hear this often from fabricators in Quebec – is that: We don't do this for Quebec hydro. Why do you guys want this? And we would hear this continuously from all Quebec suppliers. But we did have a reason for it because we want the powerhouse to last for the 50 years.

Now, again, one of the best ways to make sure that you're going to get what the contract states and what you're supposed to get is to be heavy up front; this is what the contract says, here's what you're going to do. If the quality is good, you can relax a bit. But you don't relax up front.

Now, after that input there, I don't know what happened on that scope there afterwards, so …

MR. SIMMONS: Thank you very much.

Gentlemen, thank you very much. I don't have any other questions for you.

THE COMMISSIONER: Okay.

The Concerned Citizens Coalition?

MR. BUDDEN: Good day, gentlemen.

My name is Geoff Budden; I'm the lawyer for the Concerned Citizens Coalition, which, as you may know, is an organization of individuals who, for many years, have been critical of the project and some of the ways that it's been executed.

So I've got probably about 10 questions for you, Mr. Knox, and a half dozen or so for you –

MR. SNOOK: Snook.

MR. BUDDEN: – Mr. Snook, and a couple of general questions.

So with regard to yourself and Mr. Knox, you spoke of working quite well with the Nalcor people on site and you spoke of the positive responses, relationships with the quality professionals, the engineering staff, the construction managers and so forth. You remember saying that? And when I say "saying that," I mean in your interview and, again, this morning.

MR. E. KNOX: Yes.

MR. BUDDEN: You also spoke this morning – and much more at length in your interview – of your relationship with another person on the project management team who you described as a bully, who you had some issues with. And you didn't name him this morning – you did in your interview – but that would Mr. Scott O'Brien.

MR. E. KNOX: Correct.

MR. BUDDEN: Okay.

In your interview you – and Mr. O'Brien is coming up as a witness later on so we'll have a chance to explore some of this with him, but I want to put it on the record with you. In your interview on page 13 – I'm gonna quote some bits and just have you confirm them – and you say: And, you know, and I was saying that one of the persons that pop out to me the most, you know, on being – and I'm going to use this word because it's truth – being arrogant and very difficult to deal with was Mr. Scott O'Brien. He did not listen to anything that most experienced people would put on the table, right, planning, you know, or our suggestions.

So do you stand by those words?

MR. E. KNOX: Yes, I do.

MR. BUDDEN: Okay.

And on the next page you – there's a slightly longer quote. And Mr. Collins, the Commission counsel, starts off by asking you: Was Mr. O'Brien on the ground or was he in St. John's? And you replied: No, he's very seldom on site. He would only come up for a meeting every now and again. But usually with Scott, it was on the conference call and he usually – he would chime in, you know, after the fact. You wouldn't know he was there but he would pipe up afterwards, right?

And so a lot of the conferences that I was involved in is in that, you know, when he was on site it was, you know, for me, he was a manager who managed things from St. John's, okay? Only time he would come up on site is if there was an issue, okay, of some sort. Or there was some delegation coming in from government or whatever, okay, he would show up. But the majority of what we've seen from Scott O'Brien was on the telephone, okay?

And he was not – he was just, you know – you almost say a bully, okay. And I know I'm being recorded but, yeah, I would say that, you know, I'm not one to sit back either and if I know I'm right, I'll voice my opinion on it, you know. And I've done that there on the job and – but with Mr. O'Brien, well, it was just his way or no way. And, you know, he would shut you down in a meeting, he would overpower you, over-talk you, right? And, you know, he done that not only with us but also, I think, with his own people.

So do you stand by those words as well?

MR. E. KNOX: I do, 100 per cent.

MR. BUDDEN: Okay. Thank you.

So, obviously, one can have personality conflicts with one's coworkers and that's unfortunate, but it's a fact of life. But what's going on here, the way you describe it, is I guess a management style that you took issue with and that you just described in detail.

How, in your opinion, did that management style adversely impact the project, if at all? I'm talking about Mr. O'Brien specifically and I'm going to ask you about the project management team a little more generally.

MR. E. KNOX: Yeah, I mean, well, one of the biggest things in any large project like that, obviously, is communication, right? And, you know, when you have professionals, I mean when you sit around the table, everybody has an opinion. We may not all be right, you know, in the way we see things, but where – you know, in a lot of situations with Muskrat Falls, there were a lot of issues that you had to collaborate on and you had to have input from different people. And some of the times, based on my experience and, you know, being in the industry for 25 years, is that I see things. And so you know that, yes, I may not carry the ring on my finger as an engineer, but I do know that the way we do things is correct or is not correct.

And sometimes, you know, as I said, within different levels of meetings where Mr. O'Brien

was involved is that it seemed as if – not that it seemed, it was the case that he did not respect the opinions of, you know, the management within Astaldi, or even the individuals that we had subcontracted to, you know, to look into issues that we had from an engineering perspective. And a lot of cases it was, no, guys, this is the way we're going to do it.

MR. BUDDEN: Yeah.

And, in your opinion, did – the reason why we're here in this Inquiry is because of delays and cost overruns. In your opinion, did that management style, as demonstrated by Mr. O'Brien in your evidence, did that contribute at all to schedule delays or cost overruns?

MR. E. KNOX: In my opinion and those of others, absolutely.

MR. BUDDEN: Okay, and how so?

MR. E. KNOX: In the simple fact that, you know, a lot of the issues that we encountered could've been settled relatively a lot quicker, easier, you know, with the input from the different levels of experience we had, from our consultants and other subcontractors, and basically to negotiate a fix on a lot of the non-conformances that we had with our subcontractors much more expeditiously.

MR. BUDDEN: Okay.

Who in your experience were the main members of the project management team out from St. John's who you were dealing with? The individuals.

MR. E. KNOX: Okay, so I guess I'll list the names. Mike Collins was one. I got along well with Mike. At that time as well, we had – well, Scott, obviously. We also had Paul Fraser – was back and forth at that time as well. I think now he's pretty much a resident on the project. Well, Perry, as well. I had some dealings with Perry as well on and off. So there was various aspects – and Dave Green, obviously, from the quality side. Dave was the actual project quality manager, so I had various interactions with Dave.

MR. BUDDEN: Was he on site or was he out of St. John's?

MR. E. KNOX: Dave was out of St. John's.

MR. BUDDEN: Okay. Fair enough, okay.

So Mr. O'Brien would've been one of the main ones, certainly.

MR. E. KNOX: I never dealt a lot of direct communications with Mr. O'Brien, but I was involved in a lot of the conference calls, you know, especially when we were dealing with certain issues that had to be elevated to that level on site.

MR. BUDDEN: Okay.

The – in your interview and again this morning you spoke about, particularly in your interview, about Nalcor, the project management team sometimes being slow to respond to requests for directions or so forth from Astaldi. What impact, if any, do you believe that had on overruns and delays?

MR. E. KNOX: Again, I can't speak specifically to that, but I do know that there was a lot of – between our project management within Astaldi and Nalcor project management that there was some, I'll say, bad-blood type scenario and it didn't make for a good work environment.

MR. BUDDEN: Sure.

You've been involved in projects. Obviously, in any big project there are going to be personality clashes; there's going to be, you know, delays of various sorts between the owner and the contractor. Were these problems you're describing, were they worse on this site? Were they better than usual on this site? How would you compare them to other projects you've worked on?

MR. E. KNOX: Well, just as a comparison to the project I'm working on now, I mean, the relationship, you know, with the client is, you know, significantly different and what I would say a significant improvement from what I've seen with that between Nalcor and Astaldi. Now, the manner in how things were carried out, and

Astaldi, in my opinion, was put on a different level than a lot of the other contractors at the Muskrat Falls facility. And this was also commented by not only by myself, but by my colleagues that I work with within Nalcor.

And, you know, so when you hear that, that kind of decreases your morale on the job site as well. I mean, we put pride in the work that we done there. We done a lot of good work, you know, once we got ourselves sorted, you know, with the production. And then to hear comments, you know, from the manager, the quality manager within Nalcor, Dave Green. And I'll always remember a session I had with him in his office down at Bally Rou Place here on Torbay Road, that he said, Ed, he said, I have very high confidence in Astaldi's quality management system; compared to the contractors – and I directly quote this – I give you guys a five star, okay, in your quality management system.

And then, on the opposite, I go back on site and I'd be in a conference call and Mr. O'Brien would be involved, or I – we would receive a letter from Mr. O'Brien saying that your quality management system has failed, right? You know, these sorts of comments.

So to hear that from the actual responsible, you know, site manager and also hear the directly opposite from my counterpart within Nalcor was concerning.

MR. BUDDEN: We've heard as well that most of the project management team operated out of St. John's, which was quite – obviously, quite a distance from the construction site. What in – I guess, your opinion – do you have an opinion on whether that was a contributing factor to any delays or overruns, the fact that the management team was a thousand kilometres away?

MR. E. KNOX: Well, just based on experience, I'm used to seeing the people who can make the decisions on site.

MR. BUDDEN: So it's exceptional to not have the decision-makers on site? That's unusual, you're saying?

MR. E. KNOX: It's – in the extent as to what I've seen in this particular case and the numerous times that, you know, we've had to seek additional approvals? Yes.

MR. BUDDEN: Thank you.

A couple of more questions for you. On page 18, you talk about deliverables. And just a little quote from you and you're answering Mr. Collins's questions and you say, and this is – I'm quoting you: You know what a contract is like; it's pretty open-ended. But when you get down to the deliverables and what is expected at the end of the job, that should be specified, you know. Those deliverables shouldn't be specified during the job as you're building it.

So a couple of questions there, just for those of us who haven't spent our careers doing what you're doing. What do you mean by deliverables in this context?

MR. E. KNOX: So from a quality world, deliverables to us would refer to a turnover documentation, or some people refer to it as a manufacturer's record book or the turnover dossier. So that's all the QC, quality-related documents for the work that you're completing or have completed, and in most cases, this is a progressive type of program. So you're building your dossier as you go.

And one of the biggest struggles that Astaldi had with this was getting approvals as to what the client is expecting from us with respect to the related documentation. So we would have to provide them, I guess, an outline of what we expect. This is what we're going to provide. So we would submit that to the owner for their approval, okay, and see if this was what they wanted.

And this was something that was going back and forth, back and forth, back and forth. At the same time, then, we were trying to build our dossiers as we progressed the work. And eventually, about halfway through the job, then we get a civil completions procedure from Nalcor outlining what they want from the different aspects.

So this wasn't something that was right at the forefront and presented to us; this is something that happened way down the road, but in most

cases we were the ones who initiated – here's what we expect and this is what – you know …

So at the end of the day, you know, we kind of built that system ourselves.

MR. BUDDEN: Okay.

And, again, you know, we're asking you because you've been there on many projects. Is this unusual for things to be done this way, based on your experience on many projects?

MR. E. KNOX: Based on my previous experience and working in the oil sands and on other larger projects as well, in majority of the cases this is determined in the beginning of the project. And in a lot of cases, the client, the owner, provide you with what they expect to see at the end of the day. And when I worked on the oil sands with AMEC, we actually provided the – all contractors who – with what we expect to see in the turnover dossiers.

MR. BUDDEN: Okay, so it was unusual, in other words.

MR. E. KNOX: For me, this was an unusual case, but it wasn't only with Astaldi; it was also on the first phase with IKC when we done the bulk excavation and civil works.

MR. BUDDEN: Okay.

My last question for you really is something you again spoke about in your interview: the draft tube incident, if I'm getting that right. Can you tell us what that was and a little bit about that?

MR. E. KNOX: I won't speak too much towards that because it's more of an engineering aspect than something I would not have the input into, you know, determination and cause. There is an actual report that's been issued on that that was conducted by ILF, which was contracted by Astaldi.

MR. BUDDEN: Yes.

MR. E. KNOX: But there was a failure in the cribbing, I say, on the support for the draft tube formwork. And I think the report itself determines what had happened there.

MR. BUDDEN: Okay.

Was anybody of the four of you present when that incident happened?

UNIDENTIFIED MALE SPEAKER: No, Sir.

MR. CAVALIERE: I was working night shift at that.

MR. BUDDEN: Okay.

MR. CAVALIERE: (Inaudible) happened a bit before midnight, if I'm not mistaken.

MR. BUDDEN: Okay.

All right, then. I'll move on. Thank you. I don't think I have anything more for you.

Mr. Snook, I do have some questions for yourself. About the turbines, which then you gave evidence this morning about the concerns you had about the turbines being shipped prematurely and so forth. And you talked about this terrific storage fees and so on.

I guess my question for you, and you may have answered it this afternoon, who specifically directed that the turbine shipment be accepted? Who signed off on that?

MR. SNOOK: That the shipment be accepted or that the shipment be approved? So –

MR. BUDDEN: If they're different, perhaps you could answer them differently.

MR. SNOOK: Sure thing.

So for all of the commodities for the Lower Churchill Project, anything that required fabrication, not necessarily off-the-shelf commodities, would follow by the quality surveillance release process. So for that release process, there is a written document there that does outline what is required to sign off on that release. The MRB, for example, all NCRs are closed, all inspection report open items have been closed, so on and also so forth.

Now, there are occasions where you can authorize a shipment of a commodity with a

couple items still open. That's fine, but you make that written agreement with the vendor –

MR. BUDDEN: Mm-hmm.

MR. SNOOK: – up front. So I just wanted to stipulate that first. So for the authorization of the shipment would come from the package engineer as well as from the quality coordinator for the package, and then I would also sign off as well so that then I can verify that I received that signed copy and that it has been processed.

MR. BUDDEN: Okay.

So what role did SNC-Lavalin play in that process – that authorization or delivery process?

MR. SNOOK: They were not involved.

MR. BUDDEN: Okay, they weren't involved at all.

MR. SNOOK: Not to my recollection, no, no.

MR. BUDDEN: Okay.

MR. SNOOK: Because it was a process that was owned and coordinated by the project.

MR. BUDDEN: Okay, so – and the individuals involved – you have yourself obviously. Who were the other individuals involved?

MR. SNOOK: Mr. Ned Carter was the quality coordinator, and the package engineer is Richard Severs, I do believe it was.

MR. BUDDEN: That last name was …?

MR. SNOOK: Richard Severs.

MR. BUDDEN: Severs, thank you.

MR. SNOOK: Yeah, I believe that's his last name.

MR. BUDDEN: Sure.

MR. SNOOK: Yes, Sir.

MR. BUDDEN: (Inaudible.)

MR. SNOOK: I'm horrible with names. Absolutely horrible, Dan, okay.

MR. BUDDEN: That's fine. We can figure it out.

MR. SNOOK: Fair enough.

MR. BUDDEN: Was your quality assurance area of responsibility, did that at all include any aspect of ensuring compliance with environmental regulations or was that totally outside of your area?

MR. SNOOK: Totally outside.

MR. BUDDEN: Okay.

The – we all know, obviously, or we can all assume that on any megaproject, some things are going to go wrong.

MR. SNOOK: Of course.

MR. BUDDEN: It's inevitable with anything on that scale. I guess what I'm wondering, from a quality assurance point of view, which is your area of knowledge, was the – your experience at Muskrat Falls, were more things going – how did it compare to other megaprojects you've worked on? (Inaudible) frame it like that.

MR. SNOOK: So the key point is that for the execution side, so for the construction side, I have never seen or heard of the word quality report to construction. Never have I ever seen it. And it will never work because the majority of times – I've only met one construction manager in all my years – and I've known a lot – who has a mind for quality because they understand is that if you don't involve quality up front, they can't help you, and that's our role.

Our role isn't to be the project police. Our role is to help, help ensure that the requirements are met, discuss if there is an issue, help find a solution.

One thing that I've always trained any junior is that your role is not to identify why it's wrong; your role is to identify that it is, now what's the potential solution? Because you can't dwell on problems. You'll never move ahead, right?

MR. BUDDEN: To a certain degree there's always going to be, I would assume, a little bit of tension there between, you know, the person who has to get this thing built –

MR. SNOOK: Oh, of course.

MR. BUDDEN: – and the person who is saying, wait a minute, you know, this thing has to be done just so. So that's always going to be a bit of a tense relationship, I would assume, or at least a –

MR. SNOOK: It can be testy if the roles and responsibilities are not clearly defined, and on this project it was not clearly defined who's responsible for what.

MR. BUDDEN: Okay.

MR. SNOOK: And therefore you get into the transmission line with the 400 foundations, because we should've known about that. You get into the conductor here, for example, that has a wire popping out after they've strung – and, again, I didn't see the report, but from the Uncle Gnarley page that was provided to me – 370 kilometres. How's that happen? It's impossible for that to happen. I'd fire the crew. I would.

If those were quality inspectors that were working for me – I'd give everyone a chance. Everyone makes mistakes. But 370 kilometres of it? They'd be gone tomorrow, I guarantee you.

MR. BUDDEN: Mmm.

MR. SNOOK: Right? So, yes, there are always some tensions, but at the end of the day, the project manager, the construction manager and for the quality department have to be holding hands. Yes, you're not always going to agree. There's no doubt about it. You're not going to agree with the execution contractor, either, but you all need to work together one goal, one team. That's it.

MR. BUDDEN: I – you may have answered to some degree, but I'll put it like I have here so you can answer it directly: In your opinion, to what degree was the independence and authority of the quality assurance process compromised on this project?

MR. SNOOK: C3 was the absolute worst. It was a battle for me: I'll be honest with you. With the SDRL deliverables to which Ed was speaking to, our contracts all had those lists there, but what it was was that it was an undefined list. It was a catch-all. It was everything that you could possibly think of was on that list. And a lot of times those commodities did not apply. However, it's not my decision if – which ones apply and which do not.

I struggled for three months at least, and I still did not obtain resolution to it, to redefine what those requirements are, because it's not fair for us as the owner to give this over to a contractor and say I want everything when it doesn't apply. That just slows the process down. It bogs it down, right? It creates frustration on both sides.

On site, I was told multiple times: Don't even go. Don't go because you're not wanted, you're not going to add any value. It's just going to create friction. And, again, I – I've got no problem to speak up. None. However, I don't go to a site for a fight, either. I go to help. That's my – that's my personality. That's why I love what I do, and I do. I absolutely love what I do. But I'm also fit for purpose, though, as well, is that if it doesn't make sense, let's fix it. Put it on paper, sign it off and move on. But it was a constant battle. Mmm.

MR. BUDDEN: Told multiple times by whom? Who are the people who were telling you this?

MR. SNOOK: The area construction manager for C3 on all sites, the project manager as well, there were two that went through – no, actually, when I left that section, there were actually three, and we had gone through our second area manager there as well.

MR. BUDDEN: And the –

MR. SNOOK: The second area manager was quite difficult as well.

MR. BUDDEN: And the names of these people?

MR. SNOOK: They're all on the matrix there, but Darren DeBourke, Stephen Follett, Shawn Hurley, Ray Butler, Don Samson, Bob

Greening. It was – and, to make something else clear, though, as well as that when I was asked to come over, is that they weren't used to quality being there, because the previous quality manager was not there, he wont bother. You put a piece of paper down and it seemed to me like it would get signed.

So I can understand where they would be frustrated but that's also why I sent several emails via Aconex and also via the Lotus Notes system, asking for this to be clarified, for a decision to be made by the project. If they do not want me to be responsible for the on-site quality, I have no issue, but clarify that to me, make – do not make me responsible but do – but then don't make me responsible for it, but not give me the authority to execute my role. It's one or the other; you either want me to do it, or you don't, but pick one. And there was never a written reply back.

MR. BUDDEN: Fair enough.

MR. SNOOK: Yeah.

MR. BUDDEN: My final question, and anybody who cares to answer this is free to, or all of you can.

The terms of this Inquiry are really, they're limited to certain things and certain things are excluded, but the question, I guess, I'll ask you, and the term "fit for purpose" comes to mind, when used a moment ago. This dam is intended to last 50 to 100 years or more, to generate power to do those things.

Did any of you see or experience anything that would cause you to question whether this dam is fit for purpose?

MR. SNOOK: Larry, b'ys, anything? Ed?

MR. E. KNOX: I – well –

MR. SNOOK: It's a loaded question.

MR. E. KNOX: It's a loaded question, yes.

UNIDENTIFIED MALE SPEAKER: It is.

MR. E. KNOX: But based on what I've seen, okay, while I was there and what I was responsible for, I would say: Yes, that is fit for purpose based on what we built and the documentation that we have to back that up. I'm not there since October of last year, so I can't speak for what's happening since.

MR. SNOOK: For the GE scope and in terms of the major electrical buildings for the switchyards and such, I cannot confirm that it is. I cannot say that there may not be expensive issues down the road for the residents of Newfoundland and Labrador. I cannot confirm that the turbines will not have issues. I cannot. If all the NCRs have been accepted by the engineer record, assume it's good. For the final walk-down with the yards, I cannot confirm it.

MR. BUDDEN: Okay.

Mr. White?

MR. WHITE: I left – excuse me – I left Muskrat Falls in 2015 and, of course, I worked with a lot of qualified people that do dams and whatnot, and I guess the role of the electrician is to make sure the gates go up and down when you put power to them. But when you ask if it has a 50-year lifespan, I go back to Hibernia days. And – my dad was quite interested in what I was doing there. He was well up in age. And he said Ken, he said, I believe, he said, that'll never be towed out of Trinity Bay. And that was 1997 and we're into 2019. I'd love to have the stability and the dollars that Hibernia has generated for all the naysayers in this province.

MR. BUDDEN: Sir?

MR. CAVALIERE: The simple point of what I can judge with my six years at Muskrat Falls, I'd say she's gonna last, but there's some discrepancies with the water abrasion, all the soap that's in the water. They had the spillway open for awhile, almost a year. They closed it down to do the roller ways. There was excessive erosion of concrete. One year.

Ed, if you can confirm what I'm saying.

MR. E. KNOX: Yes. So there was some erosion. But the thing is, that was not the sequence of construction either. So if the sequence of construction was followed, you would not have that process develop.

MR. CAVALIERE: So, I don't have all the answers, but I'm – to me, the abrasion and the sand in the water might compromise the – some of the components of that dam: being turbine, being concrete, being –

MR. BUDDEN: Sure.

MR. CAVALIERE: That's my opinion but, you know.

MR. BUDDEN: Well gentleman, thank you. Even though I didn't have a whole lot of questions for all of you, we – my clients and I read all your statements carefully and appreciate the thought and effort you put into this.

Thank you.

THE COMMISSIONER: All right, Edmund Martin?

MR. CONSTANTINE: No questions.

THE COMMISSIONER: Okay.

Kathy Dunderdale – not here.

Former Provincial Government Officials '03 to '15?

MR. J. KING: No questions.

THE COMMISSIONER: Julia Mullaley and Charles Bown – not present, I don't believe.

And Robert Thompson?

UNIDENTIFIED MALE SPEAKER: No.

THE COMMISSIONER: No?

Consumer Advocate?

MR. HOGAN: Good afternoon, gentlemen.

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

I have questions for each of you, so Mr. Snook, I'll start with you.

I'm gonna mostly be referring to your transcript from your interviews. Now Mr. Snook, at one point early on, you talked about the lack of a budgetary value for the cost of quality oversight of the project.

MR. SNOOK: Yes, Sir –

MR. HOGAN: Do you recall that?

MR. SNOOK: – for the third party inspection budget, yes, Sir.

MR. HOGAN: Okay.

So can you just elaborate on that a little bit and the fact that there was – there was no budget at all, I guess, is my understanding from your transcript.

MR. SNOOK: Yes and no.

MR. HOGAN: Okay.

MR. SNOOK: So what it was is that when I joined the project, of course one of the first questions I'm going to have if I need to schedule third party inspectors would be: How much money do I have? What is the total procurement value? Where would the manufacturing be? Who can I use? And how much money do I have?

MR. HOGAN: And is this your job?

MR. SNOOK: Yes.

MR. HOGAN: This is your job? So you need a budget to do your job?

MR. SNOOK: I have to.

MR. HOGAN: Okay.

MR. SNOOK: Oh, yeah. Well, I can't spend what I don't have –

MR. HOGAN: Keep going, yeah.

MR. SNOOK: – right?

So I believe at the time, they did have about 1.5 million there, but they were already – they had already spent about $500,000. Now there was a lot of manufacturing still left to go. So of course, then I started the exercise – going through the

engineering, the criticality ratings, the close surveillance levels, getting all of the confirmed fabrication sites that we had, doing all the research.

So after that was done, then I came up with the budgetary value. Went to each of the area of – went to each of the package owners as well, or for the package engineers, quality coordinators for all of the packages, area managers for the packages, individual quality managers for the packages – or for the areas rather, like C1, C3, C4. And as well, coordinated those efforts with the overall project quality coordinator. And then, after all the numbers were crunched and when it was developed, then we had to go and ask for a DAN. So then we had to ask the project to take money out of its contingency to fund the third-party surveillance effort. It came out during that point in time that there was a budget originally scoped, which makes sense 'cause everyone knew that they were gonna have to perform some level of third-party surveillance.

So there was a budget. It was removed by Mr. Ken Morrison. I believe he asked for it to be removed – to be redistributed. I think that was in 2012, I do believe it was. So we had the money, we gave it away, then we had to ask for it again.

MR. HOGAN: So would – okay. I got a lot of follow-up questions. So –

MR. SNOOK: Damn it.

MR. HOGAN: – you had to spend the first little bit of your job actually finding out – getting a new budget. Getting a budget, I guess.

MR. SNOOK: Developing it, yes.

MR. HOGAN: Developing a budget.

MR. SNOOK: Developing it and confirming it with all the responsible parties.

MR. HOGAN: I assume normal practice is that would have already been in place when you arrived? No?

MR. SNOOK: Potentially. There would have been a number put on it for sure, but then, like, you would want an individual to dig into the weeds and develop it and to validate that number.

MR. HOGAN: Validate it, okay.

MR. SNOOK: Yes, Sir.

MR. HOGAN: But you were more creating it from scratch. Is that fair to say?

MR. SNOOK: Yes, Sir.

MR. HOGAN: Okay.

MR. SNOOK: Yeah.

MR. HOGAN: On the fly –

MR. SNOOK: Not on the fly. No, Sir. No, no. (Inaudible) –

MR. HOGAN: But you were going from, sort of, scope to scope and you said, like, project to project and package to package, you'd figure out each one.

MR. SNOOK: Yes, Sir. Analyze all of them.

MR. HOGAN: Okay.

And what was – what did you – number did you come up with in the end for all this?

MR. SNOOK: It should be a matter of public record there as well, but I think it's around 1.5 billion?

MR. HOGAN: Million?

MR. SNOOK: No, billion. So it's 1.5 billion or 1 billion – I can't quite remember right now, right.

MR. HOGAN: Okay.

MR. SNOOK: But I can find the number. But, yes.

MR. HOGAN: Okay.

So would this be an overrun, then, because it wasn't included in your original budget when you arrived on the –

MR. SNOOK: You know what, I'm gonna have to go back to my notes because I know that for the overall procurement value it was about $300 million – no – (inaudible) 3.5 billion. Yeah. So we would have done at least 5 per cent of that. So …

MR. HOGAN: Okay.

MR. SNOOK: I can speak to the number later; however, I don't have it here in my notes right now.

MR. HOGAN: I'll ask you to maybe advise Commission co-counsel of that number.

MR. SNOOK: Sure, that's not a problem at all.

MR. HOGAN: But that –

MR. SNOOK: (Inaudible.)

MR. HOGAN: Sorry, go ahead.

MR. SNOOK: No, no. I do have access to – when I left that role, I still have a copy of the spreadsheet which I developed because I can use it on my other projects and I developed it. So I do have the number readily accessible.

MR. HOGAN: Okay.

MR. SNOOK: Yeah.

MR. HOGAN: And is your understanding that this budget number was in at one point but it was removed in 2012?

MR. SNOOK: Yes –

MR. HOGAN: Okay.

MR. SNOOK: – that's my understanding.

MR. HOGAN: Who advised you of that?

MR. SNOOK: I saw the change order that had removed it.

MR. HOGAN: Okay.

And who signed that change order?

MR. SNOOK: That was signed by Mr. Ken Morrison, I believe.

MR. HOGAN: Is he Nalcor?

MR. SNOOK: No, he was a contractor at the time, just like I was as well.

MR. HOGAN: Okay.

Contractor paid by Nalcor?

MR. SNOOK: Yes.

MR. HOGAN: Okay.

And do you know what month in 2012?

MR. SNOOK: No, Sir.

MR. HOGAN: Too specific?

MR. SNOOK: No, no. My memory's not that good, young fella.

MR. HOGAN: Okay.

I'm just going to go back to the turbines again, which you said (inaudible) shipped early. Do you know –?

MR. SNOOK: Well, they were shipped early in the terms of all the documentation was not available for it, so …

MR. HOGAN: And the site wasn't ready for it?

MR. SNOOK: No, we were – no.

MR. HOGAN: So that's –

MR. SNOOK: I would have dragged it out.

MR. HOGAN: So what would you – what could you –

MR. SNOOK: (Inaudible.)

MR. HOGAN: – what could someone have done, then, to drag it out?

MR. SNOOK: You're not shipping 'til you have the docks, that's it. (Inaudible.)

MR. HOGAN: So who makes the final call? The person doing the shipping or the person asking for it to be shipped?

MR. SNOOK: Oh, the final call is with the owner, of course – so, for the LCP project.

MR. HOGAN: Well, I mean, not necessarily. I mean, people in China could have put it on a plane and said: Here.

MR. SNOOK: No.

MR. HOGAN: But you're saying it was – the final call was the people on site.

MR. SNOOK: We signed the release.

MR. HOGAN: You signed the release – okay.

MR. SNOOK: The project signed the release (inaudible) –

MR. HOGAN: And were these the names you gave Mr. Budden earlier?

MR. SNOOK: Yeah.

MR. HOGAN: That's who signed the release – okay.

And what date – okay, you said you could've dragged it out. What could have been done?

MR. SNOOK: I would have said: You're not shipping until the documentation has been submitted and accepted.

MR. HOGAN: Simple as that, to drag it out?

MR. SNOOK: Well that's actually following by the contract requirements. So, it is what it is. It's there in black and white.

MR. HOGAN: Okay.

MR. SNOOK: That's what the vendor signed on for. And also, we didn't need it. But now, if we were ready for them, sure. And if we could advance the power, yes. But you would still have to look at the risk. So, do we have everything that we need? Is everything known? And then you make a decision based on that risk. Is everything known?

MR. HOGAN: And where was it shipped first?

MR. SNOOK: It was shipped from China to Goose Bay. Now, where it stopped along the way, I can't speak to, Sir.

MR. HOGAN: Okay.

And where is it being stored now? Do you know?

MR. SNOOK: I don't know. I think it's still up in Goose, I guess.

MR. HOGAN: Okay, you don't know.

MR. SNOOK: No, Sir.

MR. HOGAN: And you think it was a million dollars storage fees, is that right?

MR. SNOOK: When I heard that we were shipping it, yeah. And then when I heard that we didn't have a location for it, that's a number that comes to mind. Whether it's accurate or not, I do not know, Sir, but that's a number that comes to my head.

MR. HOGAN: A million dollars over what period of time?

MR. SNOOK: I think it was a month.

MR. HOGAN: A million dollars a month?

MR. SNOOK: Mm-hmm.

MR. HOGAN: And do you know what day it arrived in Goose Bay?

MR. SNOOK: No, but those documents are readily available as well. You'll be looking for an RNO – a release notification.

MR. HOGAN: Okay.

MR. SNOOK: And a B4C0030.

MR. HOGAN: And as far as you know, is it still being stored?

MR. SNOOK: I don't think they're installed yet, are they?

MR. CAVALIERE: No, they only got, you know, one rig started installing.

MR. SNOOK: Yeah, so yes.

MR. CAVALIERE: (Inaudible.)

MR. SNOOK: Yes.

MR. HOGAN: Yes, so we're still – the fees are still being – for storage are still being encouraged.

MR. SNOOK: I would assume so.

MR. HOGAN: Yeah.

MR. SNOOK: 'Cause – well – okay, so if you were the contractor and if you were able to be paid for this, what would you do?

MR. HOGAN: Oh, again, it's like you said to – Mr. Simmons said, we don't have to answer the questions. So what would you do?

MR. SNOOK: I'd charge you.

MR. HOGAN: Right.

MR. SNOOK: I would, because a contractor – and I say this to all my contractors and my vendors – I need you to make money. If you don't make money, you do not stay in business and therefore you cannot work on my project. But do not gouge me. That's one thing I tell them all up front. (Inaudible) –

MR. HOGAN: You're talking about who pays. The point is someone is paying for this to still be stored.

MR. SNOOK: You're paying for it. Everyone in this room are paying for it.

MR. HOGAN: Okay. Thank you.

And you said something – when Mr. Budden asked you that last question about fit for purpose, I just didn't hear – you said something about the turbines. You can't confirm the turbines – do you remember what you said?

MR. SNOOK: I cannot confirm that there will be – I can't confirm that they're all good, no, because –

MR. HOGAN: Okay.

MR. SNOOK: – there were NCRs that were still open. The MRVs, which are the manufacturing record books, were not signed off and that's – as quality assurance professionals, that's what we use, and we also use the engineer's input as well because if there are questions, we look at it; we do the risk evaluation as well. But when I left the project, I don't know where it stood then.

MR. HOGAN: Is there increased risk that they will not be good because of the storage time?

MR. SNOOK: If they're not being stored properly and then if they have to be re-machined, that's a possibility because now you have to touch them again, right, so there's a risk.

MR. HOGAN: Okay.

And did you say in your interview that there was some corrosion on those?

MR. SNOOK: As far as I'm aware, yes.

MR. HOGAN: Okay.

How did –

MR. SNOOK: There was, I believe, they've been since machined – or remediated.

MR. HOGAN: Okay.

So, do you know if there was a warranty on that or anything? Who paid for the cost of the re-machine or the remediation I should say?

MR. SNOOK: Oh, nine chances out of 10 that's us.

MR. HOGAN: Us?

MR. SNOOK: Yeah.

MR. HOGAN: Okay.

MR. SNOOK: You and me and everyone else in this room and Island.

MR. HOGAN: (Inaudible) and watching –

MR. SNOOK: The project.

MR. HOGAN: Okay. Thank you.

MR. SNOOK: I would assume.

MR. HOGAN: Pardon me?

MR. SNOOK: I would make that assumption.

MR. HOGAN: Okay.

MR. SNOOK: Right.

MR. HOGAN: So more cost to the early shipment – that all adds to the –?

MR. SNOOK: Yeah. Yeah.

MR. HOGAN: Just going to read a quote here – part of your transcript. You said: The schedule wasn't accurate or we didn't have a schedule. The contractors were running the show, not – oh, by contractors I mean the execution contractors for, say, for the large manufacturers were actually running the show, not us.

What do you mean by that? Who are the large manufacturers and why are they running the show?

MR. SNOOK: So, the majority of that comment goes to the C3 component for the HVDCs. As I've already stated here, we were fighting for schedule and every scheduled meeting we had, it was wrong – every single one.

MR. HOGAN: Who were you fighting with?

MR. SNOOK: The – GE Grid Solutions or Alstom Grid Solutions – with their project management team, with their schedules. It was impossible to get a schedule.

MR. HOGAN: The contractors?

MR. SNOOK: The –

MR. HOGAN: So –

MR. SNOOK: Yes, Sir.

MR. HOGAN: So are the contractors, then, in turn fighting with Nalcor about the schedule or – ?

MR. SNOOK: No.

MR. HOGAN: No?

MR. SNOOK: So, if they would say: Yes, we're going to ship this component on Friday, we'd say: Yeah, it just arrived on site. We didn't know it was the end manufacturing, for example, right?

MR. HOGAN: Okay.

MR. SNOOK: There was no plan for turnover there, for example. So, there was no systems-completions plan from GE Grid. How can you plan to have which commodity on site when? When to do the commissioning if you don't have the plan? And, again, this was well beyond when we should have had one. So, I started a fight for this, I believe it was – went on in May – would have been about June of 2016. So they were already well ahead then.

MR. HOGAN: Okay. I'm just going to finish the quote to give your some more context.

MR. SNOOK: Yes.

MR. HOGAN: And that's not the way this is supposed to work because then you –

MR. SNOOK: No.

MR. HOGAN: Once you let that happen, they own you. And then it becomes their project, not yours.

MR. SNOOK: Yes.

MR. HOGAN: Can you just expand on that?

MR. SNOOK: Sure. So there's a comment that I made earlier on is that when you sign a contract with your contractor or with your vendor, you stay on top of them, up front, to let them know that you're watching, to let them know that you're involved, right? Now, you do that so that you're fully aware of where they're

starting from. Do they have everything that they need? Are they prepared? Are they struggling? Right?

If they start to go off the rails, you start issuing the letters; you issue the NCRs after you have a conversation first. But then if there's no resolution, you need to put that on paper. So that if there is a dispute later, you can fight it in court, right? Now, if you don't do that, they're going to run all over you. They're going to feel that you're not watching. And if you're not staying on top of it, they know you're not watching.

MR. HOGAN: So once you give them a little bit of rope …?

MR. SNOOK: Sometimes. Depending on the contractor, yes. Not all, but some, yes.

I'll put it to you this way. So when you hear about – okay – so if there's a company that average revenue is a billion dollars a year – one of the document terms that you may have heard throughout the Inquiry so far is an inspection and test plan. Have you heard that one yet?

MR. HOGAN: No.

MR. SNOOK: Okay. So what an inspection and test plan is – whether it's for off-site manufacturing or for on-site execution – it's a list of the inspection and test points and steps throughout the scope of work. We had several extremely large contractors to where we actually had the right and ITP work instruction and provide it to these contractors, and this is bare-bone basics. If you have a contractor that does $500,000 a year in – of business, they'll know this. We actually had to write one for extremely large ones. GE were one of them.

MR. HOGAN: So you're saying if, if. I mean, did this happen on this site?

MR. SNOOK: Yeah.

MR. HOGAN: These – this is what – this is one of the things that happened?

MR. SNOOK: This is one of the things that happened.

MR. HOGAN: Okay.

MR. SNOOK: Also for the turnover process, it had to be written and provided to them. Red lining had to be written and provided to them –

MR. HOGAN: So I –

MR. SNOOK: Bare-bone basics.

MR. HOGAN: This is an impossible question, but, you know, what sort of magnitude are we talking about here when – with this issue in terms of cost overruns?

MR. SNOOK: So – yeah, it's extremely difficult for me –

MR. HOGAN: Yeah.

MR. SNOOK: – to put a number to that, and I can't put a number to it. But I'll just put this out there: if you're going to commission a switchyard, for example, and if you do not have red line drawings that have validated by the owner, by the engineering teams on both sides, is it safe to energize? 'Cause you don't know what's where. It's an extremely large risk. Ed? Anyone on that? I mean, like, this is not commonplace –

MR. HOGAN: I see Mr. Knox shaking his head when you're talking, so you can go ahead and fill in some blanks if you want to.

MR. SNOOK: No, but these are basics though.

MR. HOGAN: No, for sure.

MR. E. KNOX: I'm in total agreement with what he's saying. This is very basic stuff.

MR. SNOOK: Right.

MR. E. KNOX: This is quality 101.

MR. SNOOK: Right, but you're – but all this information is being relayed to the project management team, to the construction management team, to the area managers, and you're basically being shut out. So –

MR. HOGAN: So that's my question. How does quality 101 on a huge project not get addressed early on?

MR. SNOOK: Good question.

MR. HOGAN: That's a good question, is it?

MR. SNOOK: That's an excellent question. I'd love an answer for it –

MR. HOGAN: You don't have an answer for it?

MR. SNOOK: – I would.

I do not.

MR. HOGAN: Because it was being raised, obviously, by you and –

MR. SNOOK: Yes. Yeah. So every component of the project was being handled completely differently, and it's a sin. It is a sin. This project could have been done a lot better – more on schedule, better quality, better everything. But it's just – I'll be honest with you, it breaks my heart. And that's the reason I'm up here. I moved back to Newfoundland and Labrador to work on this project, to raise my family here. I can't. I can't work in the industry here because it's so far behind the rest of the world. It's like I'm in India. I swear.

MR. HOGAN: How is that possible? We heard that Nalcor was a – the world-class at this.

MR. SNOOK: Do Nalcor have a quality assurance department?

MR. HOGAN: I have no idea.

MR. SNOOK: I don't think they do. They have all engineers. Engineers are great, right? But I'm not talking about doing a design here, right? This is – so what I was involved in was manufacturing, fabrication, process analysis, field constructions, right?

MR. HOGAN: So designing in an office is different than implementing in Labrador?

MR. SNOOK: Oh, huge. Night and day.

MR. HOGAN: Okay.

What about the fact that we've heard evidence that there was not a lot of hydro experience within Nalcor? Was that an issue on site?

MR. SNOOK: I've – was that an issue on site for hydro in terms of –

MR. HOGAN: Well, not on site, with the project, let's say.

MR. SNOOK: I think that was a potential issue there, for sure.

MR. HOGAN: Okay.

MR. SNOOK: (Inaudible) better. Although we did have seconded engineers from SNC-Lavalin though as well, right?

MR. HOGAN: Which helped?

MR. SNOOK: Pardon?

MR. HOGAN: Which helped?

MR. SNOOK: Sometimes, yeah.

MR. HOGAN: Okay. Mr. Knox, you had something to add there?

MR. E. KNOX: I can only speak to the Astaldi scope, but, yeah, I mean, you know, we had individuals who had experience and previous experience in concrete operations but very little who had previous experience on hydroelectric operations.

MR. HOGAN: And that was a factor.

MR. E. KNOX: And that was a factor.

MR. HOGAN: Okay.

MR. E. KNOX: And that was at all levels, with Nalcor as well as the contractors.

MR. SNOOK: But, like, you have to understand is that not a lot of people, even within Nalcor – so there are some very good engineers, some very good people in (inaudible) Nalcor. But with a project like this, Newfoundland and Labrador haven't done one since Churchill Falls. This is

extremely complex and very large high-powered equipment. It's very specialized. Not for every single component, no, but for a lot of it, it is. So you need to have the resources in place. You need to do the continuous checks. You have to stay on top of the turnover process if you want it – in my opinion – to be a success.

But again, like I view – this is basics, right? It was – I was here for six months and I said to my family I made a mistake. I couldn't believe it. I left a job where I was respected, my position was respected, quality had a seat at the table with the project manager, with the construction manager and we talked together. We worked together. I came here, and it was the complete opposite.

Never seen anything like it again and I never want to see anything like it again. It's shameful.

MR. HOGAN: Okay. Thank you.

I'm just gonna move on, Mr. Snook, still with you. Issue you talked about regarding Astaldi and audit. I guess it would have been done on Astaldi before they were selected?

MR. SNOOK: An Astaldi audit?

MR. HOGAN: Astaldi, yeah.

MR. SNOOK: Okay.

MR. HOGAN: I guess an audit of Astaldi's previous projects. You said: That's what I heard. I don't know because I didn't see the audit reports, nor did I obtain them myself, so it would be third party. However, I do know that at least four or five people from the office, senior project managers, went over – I assume that means went over to Italy, I don't know – it was more like a vacation I think.

MR. SNOOK: Well, that would have been the – so that would have been the audit done to validate them. So it was an extremely large contract, right? So prior to an award of a contract of that scope and size – the same thing for the C3 scope there as well – is that you would want to audit them. For Valard, it was the same way there as well – is that you would want to perform the audit to validate that what they're putting on paper is actual factual. Because on paper is one thing; what you actually see in the field, on site, in their field offices can be completely different.

There should be an audit report in the system readily available. Because – one of the main reasons is, is that even though – so I haven't found a perfect contractor yet. I'm never gonna find one. But that's okay. But if I know where the weak points are, I know where to focus my quality assurance efforts.

MR. HOGAN: So why are you –

MR. SNOOK: (Inaudible) –

MR. HOGAN: – calling this a vacation? Who are you referring to taking this vacation?

MR. SNOOK: Not gonna answer that one for you. But, like, at the end of the day, where's the result from the trip? If there's no result, then what was done?

MR. HOGAN: Okay. You mean that an audit should have turned up that Astaldi was not the appropriate entity to do this contract?

MR. SNOOK: An audit should have turned up what the result of the audit were – what the results of it were. That's what it should have relayed. And for – and the same thing should have been done, as well, with the other competitive bids. It's common a process in the industry. You don't just go audit one; you audit all three to see the strengths and see the weaknesses. One may be more expensive, but they may be top-notch, you know they're gonna (inaudible) to stay on budget.

MR. HOGAN: So –

MR. SNOOK: Right.

MR. HOGAN: – in other projects, you don't – your experience is you don't always take the lowest bidder.

MR. SNOOK: No.

MR. HOGAN: You – it's a factor.

MR. SNOOK: Of course.

MR. HOGAN: Right. Of course. Along with experience, other things, quality, et cetera, et cetera.

MR. SNOOK: Quality, cost, safety, expertise within the organization, yes.

MR. HOGAN: Okay.

So I just want to read out a quote, I guess, to make sure you still agree with this. You say: Wow, then it makes no sense why those chose Astaldi because they had no North American experience, no cold work experience for a climate such as Labrador, they had no strong quality background, they didn't have a strong health and safety background. Yeah, it was a gong show up there. Just a gong show.

So you still agree with that comment that you made?

MR. SNOOK: Based on everything that was relayed to me, based on all the statements to which I've heard, everything that I've heard here now so far today – now, remember now, I didn't work directly on the C1 on-site but I did travel there quite often – well, not quite often. I was up there at least half a dozen times. I was part of the readiness review audit there with Mr. Peddle as well, and it was quite surprising, yes.

They – so – Labrador's not a friendly environment for trying to execute a scope like this. You want someone that's gonna come in and that are gonna be able to do it or at least know what they're walking into. When I do a renovation at my home, if I'm gonna hire another contractor, I'm not gonna pick the cheapest, 'cause I know I'm gonna have problems –

MR. HOGAN: Okay.

MR. SNOOK: – okay? Potentially.

MR. HOGAN: I just wanna talk a little bit about the transmission lines.

MR. SNOOK: Yes, Sir.

MR. HOGAN: Did you have to wait for any environmental clearances or anything like that before digging was done?

MR. SNOOK: Now, again, I didn't work on the lines themselves –

MR. HOGAN: Okay.

MR. SNOOK: – but I would assume that that would have all –

MR. HOGAN: Okay.

MR. SNOOK: – been done before Valard would have been given the go-ahead.

MR. HOGAN: It wasn't an issue that you were aware – you're aware of.

MR. SNOOK: No, Sir. No.

MR. HOGAN: Okay.

MR. SNOOK: No.

MR. HOGAN: Not aware of any unexpected problems that came when any digging was done or anything like that?

MR. SNOOK: When the digging was done itself?

MR. HOGAN: Yeah.

MR. SNOOK: No.

I do know that for the PT0308 contract, which was for the foundations, it was – there was a constant alteration, right? So for the foundation types continuously had to be changed, and we were going back and forth with the fabricator because I believe that the geotechnical was inaccurate. But again, like, that would have drove – that actually increased the costs there, I think, about $5 million.

MR. HOGAN: Because the geotechnical information it had wasn't accurate?

MR. SNOOK: 'Cause you had to change your foundation types.

MR. HOGAN: Okay.

Just – can you just explain that a little bit more?

MR. SNOOK: Sure.

MR. HOGAN: Yeah.

MR. SNOOK: So if you plan on using this type of steel, this is the amount of steel. Now you got to use this amount of steel. So it's just based on the weight, based on the fabrication times throughout as well.

MR. HOGAN: So something that they found out after the fact –

MR. SNOOK: It was progressive, I believe. Yeah.

MR. HOGAN: Was it something that could have been known beforehand, though?

MR. SNOOK: Potentially. I –

MR. HOGAN: Okay.

MR. SNOOK: – don't have a geotechnical background –

MR. HOGAN: I just ask –

MR. SNOOK: – but I would think –

MR. HOGAN: – we've heard some evidence that there was no geotechnical data provided at –

MR. SNOOK: Yeah.

MR. HOGAN: – certain points, so that's why I'm asking that question.

MR. SNOOK: Based on my previous experience, yes, you would have done the geotechnical surveys and tests prior to. And if you had unknown areas, you would have gone in.

MR. HOGAN: Okay.

Now you do talk about issues with regards to the towers and possible repairs. Do you know if there's still issues outstanding that need to be repaired with regard to those towers?

MR. SNOOK: Concrete, I don't know whether that was fixed. There was also a compaction issue there as well, I believe, right? So if you don't perform the proper compaction, well these things aren't (inaudible). They're going to settle over time, just like a house, right? And then if she starts to list – and I heard that there are towers that are listing, right?

Even with the towers that do have the concrete issues there's conductor on them – they got to take that off. Or else to try to work around it. That's not a cheap fix because these towers are out in the middle of nowhere. It's not like you're going to be able to just drive up next to them, right?

MR. HOGAN: But is that something that was going to happen anyways and you have to go back –

MR. SNOOK: No.

MR. HOGAN: No. So why is it happening here?

MR. SNOOK: Because you perform the checks.

MR. HOGAN: Because they weren't doing quality assurance checks along the way?

MR. SNOOK: Whether they were doing them and whether they were not being validated are two different answers here because, again, the quality assurance team, to my knowledge, weren't involved upfront with the scope of work. It was more of a construction monitoring issue. If the quality assurance team had been there then they should be looking at the reports on a progressive basis.

Again, as I spoke to earlier there as well, is that when they do the compaction checks, right, for example, you know what the result is as soon as you do that test. If it is not meeting the requirements, you know that they have to go back in and continue with that compaction effort.

With regards to the concrete, you'll have an idea after three to seven days. You'll have a ballpark to know that okay, I need to watch the results here, right, from this one. But then with an area like this what I would do – and Ed, you can probably speak to this – is that I would actually use a mix that is a higher MPA than what I need. Because then I know that I can check it on my seventh day.

So if the strength requirement is 25 and if I have a mix that will give me 25, I'll use a mix that will give me 35 so that I check it early, it's good, I can move on. I'll still do the rest of the checks but I'll have that assurance and plus I don't need to worry about it or the risk of doing potential rework there later, right?

MR. HOGAN: Right.

MR. SNOOK: Now whether this was considered, I have no idea.

MR. HOGAN: Okay. All right. Thank you.

Mr. Knox I'll turn to you.

MR. E. KNOX: Yes.

THE COMMISSIONER: Just before you do. I think this is probably –

MR. HOGAN: Sure.

THE COMMISSIONER: – a good time to take our break. So we'll take 10 minutes here now.

CLERK: All rise.

Recess

CLERK: All rise.

Please be seated.

THE COMMISSIONER: All right.

Mr. Hogan?

MR. HOGAN: Thank you.

Okay. Mr. Knox, so just a couple of questions actually.

In your transcript you said: Nalcor over-managed the site, they were too involved. So I just wanna ask if you can elaborate on that a little bit, the owner being too involved.

MR. E. KNOX: Well, as I alluded to earlier, I mean just from the perspective of the level of monitoring that was provided onto Astaldi and Astaldi contract, as opposed to the other contractors on site, and, you know, with respect to the contractor with the switchyard and converter station, the Pennecon-Barnards who were doing the dam structures and even ANDRITZ, from that aspect.

MR. HOGAN: So the over-management was that kind – was specifically to Astaldi.

MR. E. KNOX: It – well, as it relates to me specifically –

MR. HOGAN: Yeah.

MR. E. KNOX: – yes. And as I said earlier as well, this was communicated by their quality representatives on site, you know, saying, you know, they pay more attention to Astaldi now. Yes, Astaldi, you know, with respect to the concrete operations, there was a higher level of, I guess, inspection and testing required by frequency. But, you know, there – in my opinion, there was an excessive level of monitoring both on site and off-site.

MR. HOGAN: And I'm gonna ask you that: Why?

MR. E. KNOX: Well, I –

MR. HOGAN: Why was that level?

MR. E. KNOX: – initially, I think it was the result of the quality of the work that Astaldi was performing in the beginning. But as I said, towards the end of the project, I mean, we had one of the best quality management systems on site. And –

MR. HOGAN: Nalcor was aware early on that there were quality issues with Astaldi. On that basis they – there was more oversight given to it –

MR. E. KNOX: Yes.

MR. HOGAN: – and possibly over-management. Or was it appropriate?

MR. E. KNOX: Well, I would say: Early on, it was necessitated, but later on, in my opinion, it was over the top.

MR. HOGAN: Okay.

The document P-02139 was brought up earlier. This is the Limited Notice to Proceed.

Do you recall that document?

MR. E. KNOX: Yes.

MR. HOGAN: This is dated September 2013.

MR. E. KNOX: Mm-hmm.

MR. HOGAN: I just want to know if, in your opinion, was this issued prematurely?

MR. E. KNOX: I can't speak to that because I was not associated with Astaldi at that time. I was still employed by IKC.

MR. HOGAN: In September 2013?

MR. E. KNOX: Yes.

MR. HOGAN: Okay. So you would have known what was going on on the site in September 2013?

MR. E. KNOX: Yes.

MR. HOGAN: So, would – was it too early for any contractor to go on the site to do this work –

MR. E. KNOX: No.

MR. HOGAN: – in September? The site wasn't ready yet.

MR. E. KNOX: It was for IKC-ONE. We could have –

MR. HOGAN: Okay.

MR. E. KNOX: – started operations pretty much immediately, as I said –

MR. HOGAN: (Inaudible) spillway.

MR. E. KNOX: – pouring the spillway.

MR. HOGAN: So a Limited Notice to Proceed would have been okay for that entity, but not for Astaldi or anyone else.

MR. E. KNOX: In my opinion, yes.

MR. HOGAN: In your opinion. Okay. Thank you.

Okay. Thank you, Mr. Knox.

Mr. White, I just want to ask you if you're able to recollect – if you could compare your wage and benefit packages between Muskrat Falls site and Bull Arm site.

MR. WHITE: Very little, actually.

MR. HOGAN: Very little difference?

MR. WHITE: In overall – depending on your turnarounds, with the agreements, your double-time days, you know, like, would be the Friday, Saturday, Sunday or whatever. If your turnaround was on a Tuesday, of course, you were gonna get a couple weekends. If your turnaround was on a Thursday you may only get one weekend or whatever.

So, I don't recollect the exact wages. Muskrat Falls was a little less, but then they had the premium there of $3.50 an hour for every hour you worked, so that made up a portion of the difference between Muskrat Falls and Hebron.

MR. HOGAN: So that was the Muskrat Falls premium.

MR. WHITE: That was the Muskrat Falls premium.

MR. HOGAN: Okay.

How much was it?

MR. WHITE: $3.50.

MR. HOGAN: An hour. Okay.

And why was that required?

MR. WHITE: Very early on in the negotiations, I had a phone call from one of the people that were negotiating the contract. And on most jobs away from our home town or home province, we used to get a travel day and we used to get paid for travel. On the Muskrat Falls agreement, there was a consensus that that wouldn't be fair to the people of Labrador for people from outside of Labrador travelling to Labrador to work.

So, when the contract was finalized and negotiated, they came up with this $3.50 for every worker on site –

MR. HOGAN: For everyone.

MR. WHITE: – to be fair to everyone. But we didn't get a travel day. We didn't get paid for travel.

MR. HOGAN: But would that be enough to draw people to that project as opposed to Bull Arm? Like you said, you'd rather be at Bull Arm.

MR. WHITE: Yes and no in rather to be at Bull Arm. I worked away from home most of my life, so I was no stranger to working away. Of course, we all grow old and right now, like, my children are mature adults but I was having children getting married, grandchildren coming along, birthdays, anniversaries and whatnot. So, it was a big plus to be close – to see that for the grandchildren because during my working life, when my own children were growing up, I didn't have that luxury. You went away to work and –

MR. HOGAN: So that's your personal choice.

MR. WHITE: It was my personal choice, yeah.

MR. HOGAN: You do say in your transcript: If you could work in Long Harbour or Bull Arm or some project where you could be home every other night or whatever, why would you go to Labrador?

So my question is, was there any lack of expertise at that site of Muskrat Falls because people chose to be at Bull Arm or Long Harbour?

MR. WHITE: When – that's a fair statement and, again, I mentioned earlier that if you live in Edmonton or Calgary why go to Fort McMurray if there's lots of work in Edmonton and Calgary, right? The people wouldn't even drive the five hours. Getting back to the Labrador, and when you talk about the skilled personnel, it really depends a lot on the amount of people that are involved in any particular trade – like, most of the tradespeople up there were dispersed by the unions, right?

MR. HOGAN: By who?

MR. WHITE: By the unions.

MR. HOGAN: By the unions. Yeah.

MR. WHITE: And of course under the building trades there's 16 construction. So, if a contractor called for 16 pipefitters, those pipefitters came from Local 740. If they called for 20 electricians, 20 electricians came from Local 2330. So, again, with the numbers in the unions, there is a lot of skilled people in all the locals, but if those skilled people could work in Long Harbour or Bull Arm, that would be their preference –

MR. HOGAN: Generally, they did.

MR. WHITE: – over going to Labrador. Definitely.

MR. HOGAN: Definitely.

MR. WHITE: Yeah.

MR. HOGAN: Okay. Thank you.

I just want to ask you a question about something else you said that struck me. You said, I think – you were talking about managers and engineers from Astaldi, and you said it seemed like they would just get in Canada and their work visas wouldn't get approved and they'd have to go home. So were people showing up –

MR. WHITE: (Inaudible.)

MR. HOGAN: – without the ability to work and didn't – and just turned around and went back?

MR. WHITE: No.

And on that statement, I guess what it is on – me being privy to some of the meetings where they were talking about bringing in accommodations and whatnot and how they were going to get power and water and all this to them. And then they were getting ready for construction power and you'd go out and you'd sit in a room with a group of people in July and when you'd go back in August or September it'd be a different group of people there.

And, again, what I said – I don't have any written proof of – they didn't have a visa or anything like that but, you know like, talking among ourselves or whatever, hearing different conversations, you say: Well, they only came over for four months and their visa expired so they went back home or whatever.

MR. HOGAN: So is that a planning issue?

MR. WHITE: To me – I don't know if it'd be a planning issue but it's difficult to do work when you're changing the engineers every three, four months and when they come in they have a – probably a completely different way of doing things, or a completely different system of what they want. You know, one guy may have came in and he may want something in one area of the project. The other guy come in and say, well, that's not suitable; we're going to move it over here.

MR. HOGAN: Okay.

MR. WHITE: You know, it was just the –

MR. HOGAN: Okay. Thank you.

MR. WHITE: I guess it was more frustration than anything else, right?

MR. HOGAN: Okay. Thanks.

Mr. Cavaliere, did I say it right?

MR. CAVALIERE: Yes.

MR. HOGAN: Okay. Thanks.

Mr. Cavaliere – did I say it right?

MR. CAVALIERE: Yes.

MR. HOGAN: Okay. Thanks.

Just want to ask you a few follow-up questions on the dome. Can you just give – I don't know if this has been answered.

How long did it take to put up the dome and take down the dome? How much –?

MR. CAVALIERE: Okay.

They started –

MR. HOGAN: Let's just start with how long it to put up.

MR. CAVALIERE: Okay.

Foundation wasn't finished, I mean, the foundation was finished, the cement work was done, then would be – I can't get month return – I'd say September, October, they started erecting the steel.

MR. HOGAN: Of 20 –?

MR. CAVALIERE: You know better than me. Was it September or October?

UNIDENTIFIED MALE SPEAKER: I think it was before the October (inaudible) –

MR. CAVALIERE: Okay, we'll say end of September. Let's put a number, okay? The amount, the tonnage of the steel will have to go up from October to completion? I think you're talking astronomical amount of steel to put up, which is not doable. Right, you know.

MR. HOGAN: Well, we know, yes, it wasn't finished.

MR. CAVALIERE: But they put up half.

MR. HOGAN: How long did that take?

MR. CAVALIERE: Well, then they were done for Christmastime, okay. And they weren't quite done, but they said they were done. And after that, they tried to close off half with some kind of hoarding, with kind of a – the wind caught into it like a big sail and it all blew away, so that lasted about eight hours and it got blown away. So, that was that. So then it was open to the element.

MR. HOGAN: Okay.

And how long did it take to take it back down?

MR. CAVALIERE: All of – well, that was '15, right, '14 – '15, I'd say the first – January, February, March, probably about April. Ed, am I wrong?

MR. E. KNOX: Yeah. That's probably about right.

MR. CAVALIERE: Yeah.

MR. E. KNOX: I mean, that's about it, yeah.

MR. HOGAN: So would it – have you worked anywhere with these winter conditions before? Like Labrador?

MR. CAVALIERE: I worked in winter conditions. I worked – you know, winter might be hard. Heat is even worse than the winter –

MR. HOGAN: Okay.

MR. CAVALIERE: – believe it or not. Hot is worse than winter.

MR. HOGAN: I guess, would it be a better scenario to shut down work for the winter? Would that –

MR. CAVALIERE: Oh, definitely.

MR. HOGAN: That would – that's the better option is it?

MR. CAVALIERE: I mean, and we'd also go far. We have Hydro-Québec.

MR. HOGAN: Yeah.

MR. CAVALIERE: I mean, I know you don't want to bring up Hydro-Québec, but most jobs they do in wintertime, they close them down.

MR. HOGAN: Okay.

MR. CAVALIERE: And they don't work – they start working now, in April. La Romaine-4 starting next month.

MR. HOGAN: And that's more economical? That's more feasible?

MR. CAVALIERE: Well, it's – I mean, unless you're inside the rock like James Bay which was built in a mountain that – you know, then you're working inside a mountain and you have no issue, you have no dome, you're in a mountain.

MR. HOGAN: Yeah.

So I would suggest that's standard protocol then. Is it?

MR. CAVALIERE: Yeah.

MR. HOGAN: Okay.

And were there any days of the winter – and maybe any of you guys can answer this – when no work was done?

MR. CAVALIERE: Huh?

MR. HOGAN: When there was no work done at all certain times, certain days of the winter?

MR. CAVALIERE: I don't think the job ever shut down. The job or the protocol for a union, I think was minus 40 for them to shut them down and –

MR. HOGAN: Okay. Well, let's forget about the shutdown.

Was there any days when there was no productivity achieved?

MR. SNOOK: Well, I think there were a couple of days where we had, like, a pretty bad snowstorm –

MR. CAVALIERE: Yeah. Bad snowstorm and stuff, yeah.

MR. SNOOK: – (inaudible), right? But that's gonna happen –

MR. HOGAN: Okay.

MR. SNOOK: – right?

MR. CAVALIERE: Yeah.

MR. SNOOK: Yeah.

I know from local –

MR. E. KNOX: But to answer your question was the concrete poured: No, not every day.

MR. HOGAN: Not everyday.

MR. HOGAN: Not every day.

MR. E. KNOX: But as well, you know, you had a limited scope of work during the winter months. So, you know, you average from 3,000 to 4,000 cubic metres per month up to 5,000, 6,000 cubic metres per month – or in winter months, and then you escalate it up once the weather warmed up to 15, 16 into 20,000, right? And that's how you got your volume then was during the summer months.

But there was always a, you know, a certain level of concreting operations ongoing during the winter. That's where most of the cost was associated – was the winter concreting operations with the heating and the hoarding and the costs associated with that. That's why you had a limited number of cubic metres being placed.

MR. HOGAN: So there was unnecessary time and effort being put into trying to do work as opposed to actually doing any work. Is that a fair comment?

MR. CAVALIERE: Well, if you take that formula, cubic metre per man-hour, I'll be who knows where.

MR. HOGAN: Okay. So I'll ask you this – probably not a fair question I asked Mr. Snook.

Can you put a magnitude number on how much extra money was spent on building half a dome and taking half a dome down?

MR. CAVALIERE: Oh, to me?

MR. HOGAN: Yeah.

MR. CAVALIERE: Already in my head I have a number. You don't want to hear it because it's –

MR. HOGAN: Yeah, no, I do, I do.

MR. CAVALIERE: – too much (inaudible).

MR. HOGAN: I want to hear it.

MR. CAVALIERE: The time, the effort put into it and the lost time that we didn't do the powerhouse because we were putting effort into this – into the dome, get from what I'd say: $1 billion.

MR. HOGAN: Billion?

MR. CAVALIERE: Yeah.

MR. HOGAN: Okay. And how did you get to that number? Because it sounds like you did some math.

MR. CAVALIERE: The year wasted, I'll take '15. We take '15 – take that year, throw it out the window. Take '16, replace it with '15. There.

MR. HOGAN: Okay.

MR. CAVALIERE: Is that feasible?

MS. O'BRIEN: You just said: Throw '15 out the window and take '16. Would you have meant take '14 out the window?

MR. CAVALIERE: Oh yeah, '14. Oh yeah. I made a mistake, yeah.

MS. O'BRIEN: Okay.

MR. CAVALIERE: Take '14 out the window, and then take '15 and put it in its place. And that would be – that would probably be the realistic amount. And…

MR. SNOOK: Well, it should be quite easy to actually calculate that number just based on the cost of the structural steel, the man-hours, the equipment, for the cost of the cranes.

MR. CAVALIERE: Yeah. But you can't calculate the amount of time that you lost.

MR. SNOOK: Oh, from a loss.

MR. CAVALIERE: Yeah, that's what I mean.

MR. SNOOK: Oh, yeah, yeah.

MR. CAVALIERE: That's why I said take out '14 and put '15 in its place.

MR. SNOOK: Yeah.

MR. CAVALIERE: And that will give you, I guess, you know...

MR. E. KNOX: I'm not sure of the initial cost of this building. It was somewhere, like, in $52 million or something like that range for the cost of the ICS.

MR. CAVALIERE: I don't know (inaudible).

MR. E. KNOX: And then you had the cost of taking it down as well.

MR. CAVALIERE: Yeah.

MR. E. KNOX: Right?

MR. CAVALIERE: (Inaudible.)

MR. E. KNOX: And then they lost in the production during (inaudible).

MR. CAVALIERE: See, that's where you don't know how much time did you lose.

MR. WHITE: Well, technically you're – whatever, you lost two construction seasons, right?

UNIDENTIFIED MALE SPEAKER: Yeah.

MR. WHITE: It cost one construction season putting it up and another construction season –

UNIDENTIFIED MALE SPEAKER: Taking down.

MR. WHITE: – taking it down.

MR. HOGAN: Yeah, simple way to look at it. Okay.

I just want to read a quote from you, from your transcripts: All the people who are working even, I think, as today – maybe less today, but when I was there everybody was contract – who for SNC, who for Hatch, who for Fluor, who for NSB Energy, who for Gover – they're all contract. Everybody. We all work for Nalcor, but we're all contract, which is, to me, being like – is the wrong – the wrong way to go at it, I think.

MR. CAVALIERE: Yeah.

MR. HOGAN: So can you just elaborate on that and say –

MR. CAVALIERE: Yeah. I think Nalcor employees that get a Nalcor cheque, from Nalcor only, and Muskrat Falls, I think there's a handful.

MR. HOGAN: So in your opinion, everybody should just be there working for Nalcor?

MR. CAVALIERE: Well, I mean if your contracts administrator is a contractor, he's managing your money and he doesn't even work for you. He works for himself.

MR. HOGAN: And did this add, in your opinion –?

MR. CAVALIERE: Yeah, that's – of course.

MR. HOGAN: Adds to the overruns? Adds –

MR. CAVALIERE: Yeah. I mean, if I'm managing my money – Nalcor's money, which – I work for Nalcor – you have a different – I think you have a different outlook how to manage your money. Yeah, you're working for the company, and you're not working as a contractor.

MR. HOGAN: Right.

MR. CAVALIERE: I think that has a lot to do – a lot of the people that are in a management position, they're all contractors. When their contract is over, they don't get paid no more; they're going home.

MR. HOGAN: Right.

MR. CAVALIERE: They don't want the job to finish, you don't want to lose your job tomorrow morning. You want it to keep dragging on as much as you can. And this is human nature. I'm not – we're not going – we're not trying – you know, this is like – you know, I don't want to be in a hurry to get my job – finish my job; when I go home, I don't get paid anymore.

MR. HOGAN: You don't have a job.

MR. CAVALIERE: I do have a job.

MR. HOGAN: No, you don't have a job once the job is over.

MR. CAVALIERE: Yeah, exactly, exactly. Well, you have to go look for another one.

MR. HOGAN: Look for another one.

MR. CAVALIERE: So, I mean, you're always working. But, I mean, you know what I'm getting at. I mean, Muskrat Falls is not – is a good place to work. You make some serious money there.

MR. WHITE: In all fairness though, this is not unique to Nalcor.

MR. CAVALIERE: No.

MR. HOGAN: No.

MR. CAVALIERE: No, no, no. But – when I worked for SNC-Lavalin, I worked for SNC directly, even though I could have been a contractor. No, they didn't want me as a contractor. They said, Larry, you want to work – you have to work for us. They didn't want no contractors; they –

MR. SNOOK: But again, that would go back to the staffing plans.

MR. HOGAN: The what?

MR. SNOOK: That would go back to the staffing plans from the contractor, from the project team as well. Everyone should have a staffing plan out when they start to transition out individuals, scale down, what have you.

MR. HOGAN: Okay.

MR. SNOOK: And it's industry standard.

MR. CAVALIERE: Yeah.

MR. SNOOK: Yeah.

MR. HOGAN: Last question I have, you say as well: Not very efficient for money. People are all there, right? You're still paying all the manpower and you're getting a third of the production. So I think you were referring to the fact that there are lots of people on site who aren't necessarily working –

MR. CAVALIERE: Yes.

MR. HOGAN: – right?

Can you just give an idea of the scope of how many extra people were on the site who weren't working at a given time?

MR. CAVALIERE: Like I said, then, this morning, 2014, we didn't pour an ounce of concrete before May.
There was, I told you, 900 people there. Just to give you an idea. Do you need 900 people to put up bathrooms and make walkways and make the rooms and install maybe a dome or so? I mean …

MR. HOGAN: So there were times when there was 900 people on site not working?

MR. CAVALIERE: I mean, I don't know the numbers –

MR. HOGAN: No. But that's what I'm asking, if you can give me –

MR. CAVALIERE: I can't give you the numbers. I – that's not – I'm not in that situation, but I know how many people were there. You could tell. Bus-fulls of people. I mean, like, there was a lot of people there. And, you know, there's a lot of stuff – I mean, too many people for the work that's being done. It's not normal. Sure, we got stuff ready but you didn't need that amount of people.

MR. E. KNOX: Yeah. Astaldi crested at over 1,500 (inaudible) –

MR. CAVALIERE: See I don't know. You know more than I do. I mean, to me it's like …

MR. HOGAN: All right.

Thank you, gentlemen.

That's all the questions I have. Thanks.

THE COMMISSIONER: Thank you.

Innu Nation.

MR. LUK: No questions.

THE COMMISSIONER: Thank you.

MR. SNOOK: (Inaudible.)

THE COMMISSIONER: Astaldi Canada Inc.

MR. BURGESS: Thank you, Commissioner.

And good afternoon, gentlemen.

My name is Paul Burgess and I'm legal counsel for Astaldi Canada Inc.

Mr. Commissioner, at the outset though, before the record at least, I'd like to say throughout the evidence today I haven't raised objections to some of the evidence. I understand that Inquiry rules are quite different than a trial in relation to hearsay and things of that nature. I think the scope of the evidence that was given here today was quite broad and I didn't raise an objection. I leave it to the Commissioner – I'm sure will give due weight in those circumstances.

THE COMMISSIONER: All right.

So there are areas where witnesses are able to testify. Hearsay is not necessarily a reason why I wouldn't hear or consider testimony. But, obviously, I'd be very careful with the way I assess the evidence that I've heard.

MR. BURGESS: Thank you, Commissioner.

Mr. Knox, first of all, I just want to follow up on some of the questions that you were asked earlier today with respect to the interaction with Nalcor. And one of the issues you raised was in relation to a crane rail incident and I don't think you really elaborated on it but you were, I think, talking about design or whatever. Could you expand upon it – explain that for the Commissioner, please?

MR. E. KNOX: Well, again, I'm not an engineer but I'll give you what I know based on what I was involved in on the site at the time. And one of the biggest issues with the powerhouse structural steel components was the installation of the overhead crane rails. Astaldi had significant issues, you know, with the installation of these rails: with the alignment, the separation and everything else. And it was pretty much due to the movement of the building itself; the variations in temperatures and what we were installing to from day to night. You had variations in temperatures and trying to hit the very high tolerance on those installations made it very difficult.

And so the process itself was, I guess, very difficult on the part of Astaldi to manage. In addition to that, we had issues with fractures in the rail, in the fixation plates that fixed the rail to the actual, you know, the beams and the girders themselves, and as well cracks along the rail. So there were a lot of going back and forth between Astaldi, Nalcor, Gantrex, Supermétal, you know, those were the parties who were involved. Gantrex was the actual supplier of the rail. The design of the rail itself was an SNC design.

So Astaldi's, I guess, take on this was, you know, there's something wrong with the design here, okay? It's not working, I mean – and from what I understand as well, this was going on with Astaldi for quite some time for 2018. And from what I understand, as well, now continues with the other subcontractor who's in performing that same remediation on those rails. So the history here could take me, you know, quite some time to go through, but it was a very contentious issue between Astaldi, SNC-Lavalin and Nalcor. And, like I said, it continues to this date from what I understand. And I'm not sure – Larry may be able to speak to a little bit of that issue.

MR. BURGESS: No, that's fine.

Thank you.

MR. E. KNOX: Mm-hmm.

MR. BURGESS: Mr. Knox, I just – looking at your CV, as I understand it, and correct me if I'm wrong, you were employed by Astaldi up until the point Astaldi was terminated on site in November of 2018. Is that correct?

MR. E. KNOX: Correct.

MR. BURGESS: Right.

And around June of 2018, I understand, that you had decided you were going to resign and move on to something else but, ultimately, were convinced or decided to stay with Astaldi. Is that correct?

MR. E. KNOX: Yes. In – I was offered an actual – a job out at Site C as their quality director. And I tendered my resignation at the time for a twofold reason. One was the opportunity and the other was with respect to the financial situation with Astaldi and knowing the possibilities of what could happen there with respect to job security.

During that process as well, the then – well, the project manager, the project management team at Astaldi convinced me to stay for longevity until 2019 and so I decided to stay. And the majority of that reason was to give me that extra benefit of finishing on the project and of being home.

MR. BURGESS: Right.

Now, when you submitted – I believe it was by an email – to Astaldi in June of 2018, I just want to quote what I understand were some of your phrases that you used in that letter to Astaldi – your words: I appreciate all the support over the –

MS. O'BRIEN: Sorry, can I just speak for just one (inaudible).

So this is – we haven't had this entered as an exhibit or provided to the witness in advance. So, just to let you know that, Commissioner – normally we would have documents provided to us before they were referred to. So, I don't know what Mr. Burgess is planning to do, but I did – we did not give this to the witnesses ahead of time.

THE COMMISSIONER: So, I'll repeat what I said earlier. I don't want the Commission nor witnesses to be caught by surprise by documents. That's why the documents are supposed to be all provided to Commission counsel. If there's an exhibit that's supposed to be put to a witness, it goes into the witness book and counsel does that.

I don't think this is the first time I had to speak to you about this, but maybe it isn't. I'm not sure; I can't remember.

MR. BURGESS: So it is.

THE COMMISSIONER: Anyway – well if it is, I don't want to have to do it again.

MR. BURGESS: Sorry, it certainly is.

THE COMMISSIONER: Yeah, so I don't want to have to do it again.

So, it's not – again, the protocol here is to provide the document in advance and – to Commission counsel so that it can be provided to the witness and can be in their witness book. And that's what I expect from here on out. Okay?

MR. BURGESS: Yes.

THE COMMISSIONER: Okay.

So, what are you going to do with this document? Are you actually (inaudible).

MR. BURGESS: I'm just gonna ask him if those were his comments.

THE COMMISSIONER: Are you gonna actually have it made an exhibit at some point in time or –?

MR. BURGESS: We can. I don't know if it's – I don't think it's contentious or needs to be an exhibit, but it certainly can be. I don't have any issue. I have some extra copies if you want me to show it to the witness and the Commission. But I –

THE COMMISSIONER: I think ultimately we should – you should speak to Commission counsel and – it's probably if you're – if you are cross-examining or examining this witness on it, I think it should be made an exhibit. Okay? Go ahead.

MR. BURGESS: Well, the only thing I – Commissioner, with your indulgence – so the words that you used in it, Mr. Knox, I just want to understand if it's correct – if I'm correct.

It says: I appreciate all the support over the last years and will surely miss the team and the many experiences and accomplishments we have had together. Thank you for all of your support throughout the years and the opportunity to work with such a great team of talent.

Those were your words, I understand?

MR. E. KNOX: Yes, that's your typical resignation letter.

MR. BURGESS: Yes, okay.

And my understanding, Mr. Knox, is that you've initiated a legal action against Astaldi and Nalcor for severance payments in about $190,000 claim I think. And that's in the Supreme Court of Newfoundland and Labrador?

MR. E. KNOX: Yeah, I'm not sure that is something to be discussed here.

MR. BURGESS: No, I'm just asking you if that's the case. Thank you.

Now, thank you, Mr. Knox.

MR. E. KNOX: I'd just like to reiterate it's 122 employees initiating that similar action.

MR. BURGESS: Okay.

Mr. Cavaliere, if I could ask you a few questions.

In your evidence earlier today you were talking about the issues with planning on the site and I wasn't sure – you didn't seem to me, at least, to distinguish between whether that was the whole time you were on site that you thought there was a lack of planning, or whether you thought there was an improvement as time went on?

MR. CAVALIERE: Lack of planning – it still exists as we speak today.

MR. BURGESS: Okay.

MR. CAVALIERE: I mean, that's all I can say. I mean, the planning is still not there, so –

MR. BURGESS: Right.

MR. CAVALIERE: – even though Astaldi is gone – same thing.

MR. BURGESS: Okay.

At no point, though, I don't think, were you a part of the management team of Astaldi, were you?

MR. CAVALIERE: I was superintendent for three months.

MR. BURGESS: Okay.

And that employment as superintendent – was that ended in July of 2014, I think?

MR. CAVALIERE: Yes.

MR. BURGESS: And was that a brief time where you were terminated before your probation ended?

MR. CAVALIERE: Yes.

MR. BURGESS: Yes.

Okay, and so, then, your skill after that in July of 2014 – your employment with Astaldi and on site was as a carpenter, correct?

MR. CAVALIERE: No. I worked for AGF Steel.

MR. BURGESS: Okay, in between?

MR. CAVALIERE: Yeah.

MR. BURGESS: Right.

But primarily, your role was as a carpenter with Astaldi?

MR. CAVALIERE: Yeah.

And after I was foreman for a while too.

MR. BURGESS: Right.

And the ICS you talked about – do you have any prior experience with an ICS prior to the Muskrat Falls Project?

MR. CAVALIERE: I put up several big buildings in my lifetime – yes, I do.

MR. BURGESS: And where were those erected?

MR. CAVALIERE: I put some up in Montreal, put some up in Saudi Arabia. I put up a big building in Africa – a whole process plant for iron ore, which – concentrate, separator, three crushers, three – two primary crushers, three secondary crushers. These are all buildings that just makes that ICS look small.

MR. BURGESS: Okay.

And your involvement with those ICSs – what was your position at those sites?

MR. CAVALIERE: I was a manager at SNC-Lavalin. I took care of the schedule.

MR. BURGESS: Okay.

MR. CAVALIERE: I took care of the payment, the execution, quality assurance, I took care of all the civil work and that's what it was.

MR. BURGESS: Now, you've talked earlier today, as well, about safety issues and your views on safety –

MR. CAVALIERE: Yes.

MR. BURGESS: – and you talked about a lanyard and tie off –

MR. CAVALIERE: Yes.

MR. BURGESS: – in fact, at one point, I think, were you suspended for not tying off?

MR. CAVALIERE: Myself?

MR. BURGESS: Yes.

MR. CAVALIERE: Never.

MR. BURGESS: Okay.

Were you ever suspended from the site?

MR. CAVALIERE: Yes.

MR. BURGESS: And what were the reasons for those?

MR. CAVALIERE: Well, they said I – well, they said I answered my phone while driving.

MR. BURGESS: Okay.

And was there ever any warnings or anything in relation to leaving work too early?

MR. CAVALIERE: Never.

MR. BURGESS: Okay.

MR. CAVALIERE: One – oh, sorry, sorry, sorry, sorry – one time. The month of January, first week back to work, they said somebody caught – they said five of us went up early.

So, you know what, I'm not going to argue with them. I said, if that's early, what's early for you? Five fifteen, 5:12? They said we came up at 5:12 instead of 5:15. You wanna argue? If that's what it is, it is. I'm not gonna argue. I mean, yes, it was 5:12. It was five of us that got – five of us they caught, but there was other people already changed up in the room, already ready to go home, so …

I mean, it's easy to point a finger at somebody. Last year, with Astaldi, I did 10 drug test, okay? Ten. Two for the same reason. I know they wanted to get rid of me. I was told by several people they wanted to get rid of me. It's very difficult to get rid of me, and I know how to play the game, okay, because you play the game in two. There's a contract (inaudible) in the game, and me, as a worker, I know how to play the game. You wanna play that game with me, you're gonna have a hard time because I'll tell you one thing, you wanna throw me out of a job which I know what – I'm doing the right thing? I'm sorry.

MR. BURGESS: Okay. Thank you, Sir. That's all. Thank you.

THE COMMISSIONER: Former Nalcor Board Members? Thank you.

Newfoundland and Labrador Building and Construction Trades Council or Resource Development Trades Council Newfoundland and Labrador? I don't know if they're here. And I don't think the others are here either.

UNIDENTIFIED SPEAKER: (Inaudible.)

THE COMMISSIONER: Have I missed anybody? No. Okay.

Redirect, Ms. O'Brien.

MS. O'BRIEN: Just one question on redirect for Mr. Cavaliere. I understand the drug tests that you were given – you passed all of those, is that correct?

MR. CAVALIERE: Yes, I did.

MS. O'BRIEN: Yeah. I just wanted to clarify. Thank you.

THE COMMISSIONER: All right.

Gentlemen, thank you very much for giving us your day. It's been very informative for me, and I appreciate the interest you've taken to come, and certainly your evidence is going to be considered. Thank you very much.

UNIDENTIFIED MALE SPEAKER: (Inaudible.)

THE COMMISSIONER: And I guess we're adjourned until Tuesday. And, Mr. Learmonth, we start with the independent engineer next week, as I understand it?

MR. LEARMONTH: Correct.

THE COMMISSIONER: Okay. So we're adjourned now until Tuesday morning at 9:30.

CLERK: All rise.

This Commission of Inquiry is now concluded for the day.