Ottawa Light Rail Commission

Steven Nadon
on Thursday, April 21, 2022

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OTTAWA LIGHT RAIL COMMISSION

RTM - STEVEN NADON

APRIL 21, 2022

--- Held via Zoom Videoconferencing, with all participants attending remotely, on the 21st day of April, 2022, 1:00 p.m. to 3:48 p.m.

COMMISSION COUNSEL:
Christine Mainville, Co-Lead Counsel Member
Mark Coombes, Litigation Counsel Member

PARTICIPANTS:
Steven Nadon: Rideau Transit Maintenance
Kartiga Thavaraj, Jean-Claude Killey, Mannu Chowdhury: Paliare Roland Rosenberg Rothstein LLP

ALSO PRESENT:
Helen Martineau, Stenographer/Transcriptionist,
Laila Butt, Virtual Technician

INDEX OF EXHIBITS

* * The following is a list of documents undertaken to be produced, items to be followed up, or questions refused. * *

INDEX OF UNDERTAKINGS

The documents to be produced are noted by U/T and appear on the following page/line: 13/24.

--- Upon commencing at 8:30 a.m.

CHRISTINE MAINVILLE: Thank you, Mr. Nadon. The purpose of today's interview is to obtain your evidence under oath or solemn declaration, for use of the Commission's public hearings.

This will be a collaborative interview such that my co-counsel, Mr. Coombes, may intervene to ask certain questions.

If time permits, your counsel may also ask follow-up questions at the end to the interview. The interview is being transcribed, and the Commission intends to enter the transcript into evidence at the Commission's public hearings, either at the hearings or by way of procedural order before the hearings commence.

The transcript will be posted to the Commission's public website along with any corrections made to it, after its entered into evidence.

The transcript, along with any corrections later made to it, will be shared with the Commission's participants and their counsel on a confidential basis before being

entered into evidence. You'll be given the opportunity to review your transcript and correct any typos or other errors before the transcript is shared with the participants or entered into evidence.

Any nontypographical corrections made will be appended to the transcript.

And finally, pursuant to section 33(6) of the Public Inquiries Act 2009, a witness at an inquiry shall be deemed to have objected to answer any question asked of him or her upon the grounds that his or her answer may tend to incriminate the witness or may tend to establish his or her liability to civil proceedings at the instance of the Crown, or of any person. And no answer given by a witness at an inquiry shall be used or be receivable in evidence against him or her in any trial or other proceedings against him or her thereafter taking place, other than prosecution for perjury in giving such evidence.

And as required by section 33(7) of the Act, you are advised that you have the right to object to answer any question under section 5 of the Canada Evidence Act.

If that is all fine we can jump in.

STEVE NADON: Sounds good.

CHRISTINE MAINVILLE: So I know you've held a few roles Stage 1 on Ottawa's LRT. Could you speak to those? And we can bring up your resume in a second, but could you give us a sense of the roles that you held on that project?

STEVE NADON: Sure. So I started with OLRT April 2017 I believe, the title at that point was Power Supply and Distribution Engineer or Test Lead Engineer.

So that role was essentially to test the traction power substations on the main line for the trains.

Subsequent to that, about a year, maybe a year and a bit into that role I was promoted to be the Deputy Testing Commissioning Manager when the previous deputy resigned. Held that shortly, that position.

I was then asked to take the Testing Commissioning Manager role, so I held that position for quite some time within OLRT-c. So managing essentially -- not just the power supply and distribution tests specifically, but more the entire suite of commissioning tests for

the entire system.

In that role we were -- late in the project I was promoted to the Testing Commissioning Director, so added a few more responsibilities; while I gave my lead tester, test engineer, if you want, the -- my old role of the Testing Commissioning Manager. So as a team we completed the testing commissioning of the system.

After that -- so those were all my roles on OLRT.

CHRISTINE MAINVILLE: And just to be clear, when you say "OLRT" I think it's what I'll be calling "OLRTC", which is OLRT Construction, right?

STEVE NADON: Yes. I should have added constructor to that.

So that at that point -- those were all of my positions within OLRTC, the constructor.

And -- I'm going say it was April of 2020, I think, RTG asked me to step into a role, Project Manager, to help deliver the remediation plan that was put forward, some deficiencies that existed that the City wanted resolved.

So we had a list of, I believe, 14 major topics that needed resolution. So I took that responsibility. A lot of the systems that they were looking to get corrected were things that I had been familiar with so it made sense.

And later that year in the late summer early fall, September 2020, RTG, RTM, they both got together and thought my expertise in what I developed through the years on the project would benefit if they promoted me to the role of maintenance director for RTM.

CHRISTINE MAINVILLE: And who held the role of RTM Maintenance Director prior to you?

STEVE NADON: Tom Pate.

CHRISTINE MAINVILLE: Maybe we'll bring up your resume then. You performed these roles as part of an employee of SNC Lavalin, correct?

STEVE NADON: Yes. Actually all of the roles except the last one.

CHRISTINE MAINVILLE: You're no longer working for SNC?

STEVE NADON: Correct. I had to resign my position with SNC Lavalin to take on the Maintenance Director's role. The way the

structure works is there is different roles for different parties of the consortium. And the Maintenance Director was a role held by the Dragados ACS organization.

CHRISTINE MAINVILLE: So do you now work for Dragados?

STEVE NADON: ASC Infrastructure Canada, yes.

CHRISTINE MAINVILLE: Okay. So it's clear that your resume is not completely up-to-date, correct?

STEVE NADON: No. I don't plan on looking for another job so I don't update my resume unless I'm looking.

CHRISTINE MAINVILLE: Is it accurate to say I think you were with RTG as Project Manager from April 2020 to September 2020, is that correct?

STEVE NADON: That's correct, yes.

CHRISTINE MAINVILLE: So you were with RTM at the time of the derailment?

STEVE NADON: That's correct.

CHRISTINE MAINVILLE: And in terms of your background and experience, you have some engineering background?

STEVE NADON: Engineering technologist, college educated.

CHRISTINE MAINVILLE: And was this your first rail project?

STEVE NADON: Yes, it is.

CHRISTINE MAINVILLE: And you'll see on the first page where you talk about the daily reviews of trial running in the last bullet point under "Testing and Commissioner Director"?

STEVE NADON: Yes.

CHRISTINE MAINVILLE: So, and we'll talk about this in detail a bit later on, but would you have been on the trial running review team?

STEVE NADON: There was two review teams. There was one that reviewed the data, but I was not on the formal team that did all of the pass/fail criteria for the day, that was at a senior level.

I was evaluating the, call it the alarms, for example, that would have come in in the previous 24-hour period to explain what the origins of those alarms might have been.

CHRISTINE MAINVILLE: What do you mean by "alarms"?

STEVE NADON: Again, the system has thousands of alarm points. We monitor everything from door opening and closing to e-tel. For example, if someone pressed an e-tel that generates a pop-up alarm. So all of those need to be described whether they function correctly, whether they perform as expected.

CHRISTINE MAINVILLE: Would you, nevertheless, have been apprised of the scoring for the day and the results from trial running.

STEVE NADON: No. We presented how we thought it should be scored, in the sense that we said, we think that's a pass, we think that's a fail.

But there was another -- so we had all our data collected -- or analyzed, I think it was between 4:00 a.m. and I think our cutoff was 10:00 a.m. And then there was a subsequent meeting at the senior level where they presented to senior people at OC Transpo, I believe, that put the final numbers together.

But, no, we weren't allowed to know that information.

CHRISTINE MAINVILLE: So who was gathering your data? What were you relying on?

STEVE NADON: Who was gathering my data or who was I presenting it to?

CHRISTINE MAINVILLE: No. How were you gathering your data? What was the source of your data?

STEVE NADON: There's numerous -- so we have -- we had inputs from various individuals that would come in at 4:00 a.m. and just collect the log files, for example, the alarm tables of what alarms came in.

They would then show us specifically at what time that alarm was generated. So we would then investigate at what was going on at that time. We would look at CCTV footage and say, Oh, that trigger point happened because somebody walked through a sensor, or somebody left the door open, or a variety of things.

So there was a team of about three or four gathering the data, and then we were a team of four people maybe analyzing the data.

CHRISTINE MAINVILLE: All from OLRTC?

STEVE NADON: RTM and OLRTC. I believe the one gentleman was familiar with the databases for RTM, which is the IMIRS, or information management system that captures all

the work orders.

CHRISTINE MAINVILLE: I think it's IMIRS, is that correct?

STEVE NADON: Yes.

CHRISTINE MAINVILLE: Would you get any data from Alstom?

STEVE NADON: I don't think I was looking at any train data, that might have been a different group. I'm trying to think if there was anything.

Again, they were more reliant on my background, being the field elements. I don't know if there was another group that was looking at train-specific information.

CHRISTINE MAINVILLE: I see. So you're not looking at the train-specific information?

STEVE NADON: No, no. That wasn't my section at all.

CHRISTINE MAINVILLE: Counsel, if you could look into whether there was another team responsible for the rolling stock and advise us as of that that would be good.

U/T MR. KILLEY: We can do that.

CHRISTINE MAINVILLE: So in terms of

whether something is a pass/fail, you're looking at events on the line but that don't relate to the trains?

STEVE NADON: We were looking at the system, we weren't looking at train-specific, right? Because this trial running was not specifically looking at how did the trains perform, it was how did the network -- was it a live system? Did everything work as designed and functioned?

Was the signaling system providing the proper signals for the train to operate? Was the power supply, for example, putting out the proper voltage for the train to operate? During this trial running period, it was -- the City had -- I won't say "hired", they dispatched, I guess, employees to test -- again I'll go back to these e-tels, the information telephones. They would open various doors. They would ride all the elevators and escalators. So we would be monitoring and looking for failures of all of those systems.

So, for example, if they were in a -- I'll use just a station called "Blair" as an example. If they were riding the elevator and

it stopped, there would be alarms that we would be produced and we would have to analyze those alarms, if they existed. And we'd say, Why did that elevator stop? And maybe, again, don't say this happened, but as an example we might be able to see on the footage that somebody was jumping up and down on the elevator and that stops the elevator.

Those were the things that we were looking to investigate. Any of the anomalies that reported we were doing to deep dive to say, Oh, that happened because of this, or that happened because of that.

CHRISTINE MAINVILLE: And we will come back to that, but just to finish off with your resume. Could you go down under "Deputy Testing and Commissioning Manager"? Right there you have the fourth bullet point, "updating the testing and commissioning schedule".

STEVE NADON: Yes.

CHRISTINE MAINVILLE: Is that the overall schedule, including the rolling stock and all aspects of testing and commissioning?

STEVE NADON: No. That's literally the testing and commissioning series of tests.

There was about -- I would have to go back and review it, maybe 212, 215 individual tests that needed to be scheduled. So that was the schedule I was updating.

So any time we'd completed one I flagged it. Any time there was a new system available we'd say, Okay, we can schedule that in and it's available for testing on such-and-such a date.

CHRISTINE MAINVILLE: But did you say, no, it did not include rolling stock?

STEVE NADON: No. It didn't include rolling stock.

CHRISTINE MAINVILLE: And why was that? Was is just an entirely separate --

STEVE NADON: There was a whole different department doing rolling stock.

CHRISTINE MAINVILLE: And the last bullet, "Integrating the commissioning plan with plans of train control and vehicle suppliers". Do I understand it to be --

STEVE NADON: So some of my specific tests in the testing and commissioning portion involved needing trains, and trains need to run with the train control system. So I needed to

rely on that system to be functional and available to us so that we could complete -- integrate those into the testing commissioning plan.

CHRISTINE MAINVILLE: Okay. So let's bring this down and file that as Exhibit 1.

EXHIBIT NO. 1: Curriculum vitae of Steve Nadon.

CHRISTINE MAINVILLE: Can you tell me more about the integration piece, and what you might have tested that related to integrating the rolling stock with other parts of the network?

STEVE NADON: Sure. So one of the early ones is I needed a vehicle to actually test the "vehicle envelope" to ensure that the guideway was assembled with proper dimensions. So the OCS was at the proper heights, the posts were not too close to the sides of the vehicles, if you want, so that you had proper distance between the vehicle itself on the track and any fixed objects that are constructed within it. And that was one simple test.

We ran the entire line. People walked beside the vehicle at 5 kilometres per hour. We

were taking section-by-section looking to see if there was any interferences.

So that was one tests where you integrate the vehicle within a test that you're trying to look for for additional data.

There were a variety of other tests. Some were specific system-wide testing where you would -- we had to test, for example, the duration of travel from one station to the very end. So we had to meet that deadline, which was, I believe 23, minutes, if I recall correctly.

So again, that would have been an integration test where you would need all of the systems functioning, because you were now relying on a train operating at line speed, so full speed. So to do that you had to make sure that your train control system was activated and operating first.

CHRISTINE MAINVILLE: So that would have involved Thales' systems, right?

STEVE NADON: That's correct.

CHRISTINE MAINVILLE: And so would you say most of Thales' testing would have related to your testing and commissioning plans, as

opposed to the other department?

STEVE NADON: How do I -- I'm not sure how I answer that one.

I wouldn't say most of Thales', but at the end the sum, let's say, the final Thales' configuration I would say yes. Without their final control system in place a percentage of my tests could not be executed until that system was available.

CHRISTINE MAINVILLE: And what can you tell me about the delays that there were to being able to perform those integration tests?

STEVE NADON: Delays of what type?

CHRISTINE MAINVILLE: Let's start here. Do you recall what the original plan for integration testing was? And by that I mean specifically -- well, in particular relating to the integration of Thales' signaling system with the rest of the -- with the trains and the infrastructure.?

STEVE NADON: I don't recall anything around specific dates. Again, we were executing the tests suites, if you want.

We would execute as many tests as we could with the available systems that we had.

And that's why, you know, you mentioned earlier with updating the schedule, that was essentially the juggling act, right? Here is where we are today. What systems are available next week or a week from now that we can say, okay, we can now integrate this test that we hadn't completed yet into the schedule? If you're looking for specific dates, I can't --

CHRISTINE MAINVILLE: No, no, not specific dates. But do you recall -- well, first of all, the RSA date was pushed back, right? The original RSA date?

STEVE NADON: I honestly don't remember what the original date was.

CHRISTINE MAINVILLE: So you would not have been apprised of what you were tracking towards in terms of a deadline?

STEVE NADON: No. I was tracking my overall tests as a suite, as I say, 200 -- I can remember what the total was but I know it was over 200. And again, some of them were very simple tests that we did right away. If they didn't involve any trains they could be accomplished and they were well off the list a long time ago.

But as the pieces all fit together the tests became more sophisticated as integration tests with various systems. So those tests became the later stages of the project, if you want.

CHRISTINE MAINVILLE: And do you recall those stages becoming compressed as a result of general -- other delays on the project?

STEVE NADON: The only thing that comes to mind was I know we -- again, I don't remember dates specifically, but I know we had a lot of -- we had everything from Blair to U of Ottawa completed where we could do all the tests that we wanted.

We had the problem near the Rideau station with the sinkhole. It kind of bisected everything we could do. We couldn't get any equipment over to the other side near Tunney's pasture to do any testing because we had a massive chunk of the rail missing. There was no track and there was no OCS in place. So I know there was a big scramble.

We came up with a plan to try and expedite things and move a few trains. And I

can't even remember if it was one or two trains that we brought over to Tunney's pasture. And in doing so we managed to complete one track that we could use but there was still a section of power -- there was no OCS for about 50 metres, if I recall correctly.

But we decided that -- the way the trains rolled on steel rails, once the rain had momentum you could let it coast through the tunnel and it would probably get us beyond that gap where we had no power, which is what we ended up doing.

So once we did that, the train was at Tunney's, I now had a vehicle to use at Tunney's to execute between Tunney's and Lyon Station that I could then continue a lot of my commissioning of the various systems in that regard. So that's what we did. And I think the train stayed there for a month or maybe two.

CHRISTINE MAINVILLE: On the other side of the tracks?

STEVE NADON: On the other side, yeah. And we had to put security at the station to monitor that train every night so it wasn't subjected to graffiti.

CHRISTINE MAINVILLE: And is that how most of the integration testing was performed ultimately on those two --

STEVE NADON: Most of it, because it all had to come together. This was specifically -- I think I described that OSC test that I was telling you earlier about, the vehicle envelope. We hadn't done that because we couldn't get to that side of Tunney's.

So once we got beyond the gap in the tunnel, if you want, the sinkhole area, now I had the pieces I could use to execute my testing.

So there was -- everything had to be started at that point. We had to do the OCS integration testing, we had to walk beside the train. A lot of tests that needed to be accomplished.

But, again, we still had now these numbers. Fifty percent of the track was done because we had all the pieces there. We had another 30 percent from Tunney's to Lyon. And then we still had that 20 percent in the middle that needed to be done at some point. So at the end of the road all these pieces got put

together when everything was 100 percent complete, and then we could do what we call the "seamless, full integration tests", which is the one I mentioned earlier.

There's no way you could do, for example, the end-to-end travel time if you don't have a chunk of track, right? You couldn't run -- Oh, we got to U of Ottawa in 17 minutes, let's write that down and keep that block and then do another tests and add them up. No, that wasn't aloud. You had to do a complete seamless run. So those tests could only be done once all of the infrastructure was completed.

CHRISTINE MAINVILLE: And whenabouts would you say that was? I don't mean to quiz you on dates. So if revenue service ultimately was August 30th or September 2019, how far in advance of that would you estimate the full track was available for testing?

STEVE NADON: I honestly don't remember, it would be a guess. Earlier that spring maybe.

CHRISTINE MAINVILLE: It was that same year?

STEVE NADON: Oh, definitely that same

year, yeah. Sorry, I didn't know you were looking for that level of granularity.

CHRISTINE MAINVILLE: I could have told you I know the answer but you're giving the evidence.

So I take it you would have been working with Thales on these integration tests?

STEVE NADON: Yeah, I suppose you can say we were working with them. I mean, they provided me their system, right. So I had the overview of their system in the sense that they said, Steve, Our equipment is ready. It will operate correctly. So were they involved with that integrated tests? No.

None of the subs were -- we were independently verifying their systems, if that makes sense.

CHRISTINE MAINVILLE: Got it.

STEVE NADON: In the commissioning department.

CHRISTINE MAINVILLE: Are they witnessing?

STEVE NADON: In some cases we did. I don't ever recall having an Alstom person on board. I'm trying to remember if I had a Thales

person on board, I don't recall. We had the City on all of the tests, they had witnesses.

So, again, so OLRTC were executing the test. I had myself and my test team. I always had a witness because we always had two boxes to check on our side. We had RTM as a witness as well because they were going to be maintaining it so they had an interest ensure that all of the testings were completed. And then we had the City.

And I think we also had a member of the independent certifier, seems to ring a bell. We had someone from RTG there at some points as well.

CHRISTINE MAINVILLE: Would you ever be reporting back to Thales on the results?

STEVE NADON: Not unless there was a failure. If we had a test that failed -- I mean, I recall one that did fail actually, it was called the -- gee, what was the -- something about a clock.

We had a clock that synchronizes everyone's clocks so they were all working on the same time stamp. I just can't remember that test. But that one took a while for Thales to

get their clocks in sync with our clocks, if that makes any sense to you.

They were using -- whether they were using a local time instead of universal standard time, I can't remember. But there was always something there. And that particular test took a little while. We tried it numerous times until Thales realized they found the bug in the software and they fixed it.

So we did have repeat tests. That was the whole idea behind testing. You test, you may fail, you have to figure out what failed, why, and then you go and get that corrected and then you re-execute that test.

CHRISTINE MAINVILLE: It's fair to say it's used by Thales to debug the system, so to speak?

STEVE NADON: Yeah, I think you can say that.

CHRISTINE MAINVILLE: So were there several software glitches like that or issues that had to be addressed during that phase?

STEVE NADON: I think during the testing and commissioning phase -- well, we kind of -- we did a lot of dry runs leading up to it,

right? So we kind of said, Let's do a what-if here. Are we ready for this test? Are we ready to invite the client? And that's what it amounted to. At the very end the formal test, if you want, was always witnessed by the client.

So we would sometimes have to do dry runs and say, No, something isn't right, let's look at what it was and then get it corrected.

Again, in 200-some-odd tests I would say, yeah, there might have been a lot of them. But a lot of them were repeat failures until we figured out what the problem was.

A lot of them were not always integration tests. We had a lot of failures of just -- the doors, for example. We tested all the doors on the system. So that's a very extensive test because it integrates the doors, the cameras, the SCADA control system. So all those systems integrate together.

But you would go to a station and maybe that door didn't exist yet because we were running that test. They hadn't mounted all the hardware. So we would only get about 90 percent of the test completed and we'd have to circle back and do the other 10 percent at a later

date.

CHRISTINE MAINVILLE: When you're reporting failures to Thales would you ever get feedback from them -- do you have any insight in terms of the -- their views of how this is going, or the system's readiness?

STEVE NADON: Yeah. We had -- I mean there was a weekly meeting with Thales, I remember that; that was one I attended.

At that point we were discussing, Are we ready for this section? Yeah, that rings a bell.

CHRISTINE MAINVILLE: Did they raise concerns about how the integration had gone up to that point?

STEVE NADON: Not that I can recall, no.

CHRISTINE MAINVILLE: Do you recall by the end of it whether Thales thought it was sufficient integration testing? I take it they passed all the requirements?

STEVE NADON: Yeah. Again, Thales is one of the safety systems, right? So it was very structured, very regulated. Nothing with their systems would be approved for use until

their safety department issued us a safety certificate.

So there was a lot of back-and-forths saying, No, you can't use that system. Or you can use it for testing but it's not -- for example, the switches, they'll take the switched on the main line as an example.

Thales controlled those switches remotely through their train control system; but until they certified that their train control system is up to the proper -- up-to-date, we'll call it, and when I say "up-to-date" I meant it has their latest software in place, vetted, validated, proven software. Only then would they allow us to -- I don't know if you're familiar with railway, but you can clamp a switch -- if you're going to -- you can use a switch, you can drive through a switch but you have to clamp it. Because if the control system is not certified a switch may move.

So you're not allowed to drive over a switch that doesn't give you a positive indication that it's in the proper orientation. So that was one thing with Thales, was, yeah, you can use the line, the switches work. You

can use them to -- you can turn on the switch machine and make it move your switch, but once it moves it from the tangent to turnout position, we then had to clamp that switch with a mechanical clamp. Because their system wasn't certified yet to say it's used for service.

So that was much later in the process when we were doing our integration testing. But, again, these are various stages. You still have to run along the -- even moving the equipment down the rail line, just a truck and a flatbed trailer, you have to go through the switches but you weren't allowed to use the train control system for that, you had to do the manual operation in clamping these switches.

CHRISTINE MAINVILLE: I take it, given that you had not performed this role before in respect of another rail project, is it fair to say that you don't have any comparators in terms of how long an integration testing period should be or how this one compared to other?

STEVE NADON: You're correct. I don't have that knowledge to say, this one took longer than another project. I don't have that experience.

CHRISTINE MAINVILLE: And in terms of how the criteria was devised, where did that come from?

STEVE NADON: So all of the tests that I was executing, all of these commissioning tests, if you want, were all designed by the engineering joint venture. So I was given the criteria.

I didn't create the test. I was their field executor, if you want. Their engineers and their designers designed, who designed the entire system, the construction project, if you want, would say, To validate the train control system, as an example, you would have to do these specific tests.

So I would have to read -- understand their methodology. I would quiz them. I was given the opportunity to talk and run through it. We had run-throughs with the engineering group saying, Do you guys understand what this means? Yeah, we had expertise within my team that knew what was required.

But all of those tests were handed to us as a deliverable to execute. We were not the designers of the tests.

CHRISTINE MAINVILLE: And do you have any knowledge of how new or standard Thales' signaling system was?

STEVE NADON: I believe this is a mature system. It's used in other countries -- well, it's used in Canada, in the Canada Line out in Vancouver, for one. So a lot of the documentation I was reviewing was actually Canada Line documentation.

Because the EJV joint venture that was producing all of, a lot of them worked on that project. So all of the pieces were brought over, if you want, I don't know if that's the right word, or integrated from that project. So it was similar technology or similar systems. So a lot of the tests were basically tests they had already executed on their system.

CHRISTINE MAINVILLE: You indicated there were two review teams. Your team would determine, based on your data, how you thought something should be scored as it was passed down and then there was a more senior level team. Did you have any concerns about what came out of the senior review team?

STEVE NADON: We were never told what

came out of the senior review team? I think that was one of the criteria for trial running. It was all secretive, behind closed doors and you'd only get an answer after the 12-day period, I think it was 12 days; whatever trial running was supposed to last.

CHRISTINE MAINVILLE: And you were testing these systems at the same time as the trial running period for the rolling stock, right? Everybody is doing --

STEVE NADON: Everything, yeah. Again, we were simulating service at this point, right? I don't remember how many trains we used, but it was -- you know, we would have to launch trains, they would have reduction trains, just like a normal schedule. We'd have to report on any failures or whatever findings there were.

It was just routine daily service simulation, without passengers on board.

CHRISTINE MAINVILLE: So what are the things that you would test? Did that include the station availability?

STEVE NADON: Yes. That's what I was telling you. When I talked about the City

dispersing people, whether it was employees or other people they hired, it was to test that station availability.

Ride the elevators, make sure the escalators were all up. Opening and closing of the stations, that was a function by RTM, for example, the control centre here. They have to open up the grills every morning prior -- to allow people to come into the station.

All of those activities that would be part of our normal -- what we call today our normal daily activity was all tested during that trial running period.

CHRISTINE MAINVILLE: What about maintenance delivery, were you involved in that?

STEVE NADON: No. Not on this, not until I became RTM's Maintenance Director.

CHRISTINE MAINVILLE: You say you had no insight into the senior review team, what would you know about what criteria was being applied by them?

STEVE NADON: I think there was a score card but that's just something I'm remembering. I don't know what it looked like. I don't know if it was -- you know, I don't

know. I can't remember. I just remember hearing him talk about a score card system. I don't know if I was just -- I can't remember if my portion I was reporting on was just one element of that score card or it was four different categories. I just can't recall that.

CHRISTINE MAINVILLE: So the score card is not something you would have been working off of?

STEVE NADON: No, no. Again, we were analyzing the data -- the alarms. We were explaining what had happened.

When the alarm came in, again we'll use station availability as an example. If we had an escalator that wasn't working my team was looking at the fault of the escalator. What did it report? Was it hydraulic oil? Did someone jump on it? What triggered -- did somebody press the E-stop? Because I think they were testing that as well.

If they just stopped the elevator with E-stop. The SCADA system that we have interrogates all of these central points and we would report back, Okay, that was at this location due to this activity.

CHRISTINE MAINVILLE: So you were involved in testing that system?

STEVE NADON: Yes. Yeah, every alarm point.

CHRISTINE MAINVILLE: I might bring up a document just to see whether you're familiar with it. It's called the "Trial Running Test Procedure" number OTT377178.

STEVE NADON: Based on what you said I don't know, but I can see what it looks like.

CHRISTINE MAINVILLE: So we understand that this was -- this set out at least some of the criteria that would have applied to trial running. Was this something that you would have been working off of at all, or been aware of?

STEVE NADON: I don't know if I remember that actual procedure, but I remember Will Allman. I was working with Will Allman on that team I was telling you about.

CHRISTINE MAINVILLE: Okay.

STEVE NADON: So he may have been directing us. I can't remember. He was the lead, if you want, and I was kind of reporting my findings to Will.

CHRISTINE MAINVILLE: Okay.

STEVE NADON: So, again, he may have been working off of this road map, this document. Without reading the 19 pages I'm not sure.

CHRISTINE MAINVILLE: If you go down a little bit you'll have date there, it's a July 31, 2019, document?

STEVE NADON: Yes.

CHRISTINE MAINVILLE: And maybe we'll just jump to page 15 and I'll ask you if you're familiar with that. This would be one of the types of tests you would run, station performance and station availability, correct?

STEVE NADON: Yeah. I was not involved in any of the math that you see there.

CHRISTINE MAINVILLE: So --

STEVE NADON: Again, I was reporting on if there was failures in the station. I wasn't giving the score for the station.

CHRISTINE MAINVILLE: Okay.

STEVE NADON: I was reporting to somebody maybe to create this score that you're presenting.

I was probably asked to analyze why did something not function in the station, for

example. And then I would have look into that and get somebody to go -- go to the station and look. Is it still a problem? Was it a problem? Was it the way somebody behaved at the station or is it truly a failure of a subsystem within the station?

CHRISTINE MAINVILLE: We can bring this down and file it as an exhibit just for identification purposes.

EXHIBIT NO. 2: Document entitled "Trial Running Test Procedure". Document number OTT377178.

CHRISTINE MAINVILLE: Is it fair to say then that you would have no knowledge of any changes to the criteria over the course of trial running?

STEVE NADON: I had no knowledge of that. Again, my role at trial running was analyzing the daily events.

The other team were discussing whether that day passed or not, and they wouldn't even tell us if there was a pass day.

CHRISTINE MAINVILLE: And what could you tell us about how the IMIRS system worked, and whether it was working with the

functionality? This is the IMIRS system

STEVE NADON: That IMIRS system is the work order system. So during the trial running period, for example, an that alarm gets generated, and, again, I hate to keep saying "alarm" because there are thousands of alarms on this system. So some of them are just informational and some of them are -- a sump pump, for example, if the water is high you get a high alarm.

So any of these alarms would be displayed on the operator's control down at the TOCC, the Transit Operation Control Centre.

So if they would get an alarm they would then go and enter a work order in the IMIRS system. IMIRS is how we are given the taskings, if you want, that there's a problem. It then pings a technician. It says, I've got this request for you to go and look at this particular problem. The clock started that the moment because it's time stamped.

Different alarms have different penalties associated with them. So you only have so many minutes to respond or hours, depending on the severity of type of alarm.

So all of that is tracked in the IMIRS system. So IMIRS -- the operator would enter the work order. That work order would go to the technician in the field, the technician would go and work on whatever that problem might be. Let's use the example of that escalator as we mentioned earlier. There's a work order that says, Escalator at Blair was stopped. Somebody would go to the station, they would see the E-stop had been pushed.

Certain activities our technicians can do, I think E-stop is one of them. We're allowed to restart an escalator if it's just pushed by the push button, E-stop. But if it's a sensor, if it's, again, somebody was jumping on the escalator, or somebody fell on the escalator and it jams one of the treads, only an authorized elevating device company can reset those alarms.

So we would then have to call in Schindler, he was RTM's maintainer for elevating devices. But then that work order would get closed at IMIRS and that would be the end of that particular work order.

So IMIRS did work throughout that

process because that's what I was reviewing the next morning. All of the work orders that got generated in the previous 24 hours, whether they were closed or not, whether they were critical alarms, whether they were informational alarms, and that was the summary that I was giving to Will Allman, and whoever else was on the group, to present to the senior team.

CHRISTINE MAINVILLE: And was it a component that was being tested itself?

STEVE NADON: Everything was being tested in the stations. As I say, the City had sent, I'm going the say, ten people to test various things in the system, which was actually a problem at one point.

We had to call them in and say, you're overexercising the system. Because what they were doing was they were going to a station and pressing the emergency telephone buttons.

So the way that the emergency telephone button works is, if you press that button it rings to the SCU, the security people at OC Transpo, but it also pops up the video so you can see who's maybe in distress. And it was two camera views, for each time you press the

e-tel two cameras would pop up.

What the City was doing, again, these ten people were in the station, they were pressing all the e-tels sequentially, as apposed to waiting for the one to come up where the guy could respond.

So at the other end the messages were not being -- the camera activations were not being displayed correctly because they were pressing too many sequential details. You had to let the system -- they weren't using it for it's intended purpose. They were just trying to do all their sweep of the station so they could go to the next station and do the same thing.

So we had to take a pause and talk to the City about that and say, Guys, you're not executing a real life situation here. You're trying to break it, or you're trying to get through it too quickly. You're not doing a true test.

So once they understood the rationale behind it then they started to operate it correctly. They would do one or two e-tels on each station. And they knew this test would go on multiple days, so the next station they would

do one or two. So they would kind of sample these details and opposed to pressing each and every one of them in sequence.

CHRISTINE MAINVILLE: Do -- I guess you have no awareness of what happened post-testing on that front?

STEVE NADON: As in at the end of trial running or the end of that day?

CHRISTINE MAINVILLE: No, after trial running entirely?

STEVE NADON: I assume we got our certificate and opened the line.

CHRISTINE MAINVILLE: But do you know how the City then went about -- I guess, did they continue sort of testing the work order system in terms of --

STEVE NADON: I see, in that regard. To this day we still do it. To this day they still send people throughout the stations and open all the doors, and press the e-tels from time-to-time. And if something doesn't work they write an IMIRS work order on it. Sorry, they don't write the IMIRS work order, they call it into our control centre, we open the work orders now. That's the new change we made,

because they were opening work orders for everything.

CHRISTINE MAINVILLE: So would you have only become aware of that once you started working for RTM?

STEVE NADON: That portion of it?

CHRISTINE MAINVILLE: The continued testing of these various --

STEVE NADON: Yeah, I guess. I really notice it now because all those messages come to me when things are not working. I'm definitely more aware. Was I aware before? I might have been but definitely now with RTM for sure I'm aware of it.

CHRISTINE MAINVILLE: But I guess immediately after service began would you have been involved in --

STEVE NADON: No, I wouldn't know anything on that because I was back on the constructor side on that point.

CHRISTINE MAINVILLE: So you don't know how it compares in more recent time to how it was immediately --

STEVE NADON: No, I don't.

CHRISTINE MAINVILLE: Okay. What --

have there been any discussions -- since you've been with RTM, have there been discussions with the City about this practice of testing -- or entering work orders for various issues on the system?

STEVE NADON: Well, the answer to that is yes. We've had numerous conversations with the City on it. We use the word "batched work orders".

What we typically see is the City, weekly, daily, I can't remember what their frequency is, they send their agents to various stations and they will do a sweep through the station. And again, they'll check all the doors, and they'll check a bunch of the e-tels. And what they do is they then go back to their office and they record their findings. And if they found six, seven, eight doors that didn't alarm or didn't open when they tried to use their access card, so they start entering these into the system.

So all of a sudden what happens is RTM, or through IMIRS, I will get ten work orders for one station. And now I've got penalties that are going to start to kick in for

each one of these work orders. So I have to sit there and say, okay, how do I triage? Which one is going to cost me the least amount of money? Which one do I have to hit first?

I don't have an infinite amount of staff. I don't have ten technicians that I can send to that one station where they each handle one door. I have to go and identify which door is going to cause me the most penalties. Is it a back-of-house door where I can say, You know what, City, your wrong. Don't worry about that one, it has another door protecting it. We're safe and secure.

If it's a main entrance door that doesn't open, that's a problem because now you can't get passengers into the station.

So, yes, that practice still goes on. We have had numerous conversations. We've asked the City if we can be apprised of what stations you're going to so that we can go with you. Because another thing that we found is that sometimes they don't actually actuate things correctly.

I'll use the example of the e-tels again. They'll go and press the button, they'll

press it really quick. Well, no, you have to depress that button. It's a telephone call. It's not a touch pad where you just have to lightly press. You have to actually make sure you press that all the way to the end so that the contacts are made.

So they would eventually -- they'll go in there and one of their field people will press it. But we'll go down -- we'll get the service call, we'll go there when we test it it works just fine. And they say, Well, why does it work for you but not for us? Well, the only thing we can determine is they didn't press it hard enough.

So we said, tell us when you're going, we'll go with you. We'll gladly walk the station with you. Give us your schedule. No, they refuse to do that.

CHRISTINE MAINVILLE: Who's your counterpart on the City on this?

STEVE NADON: My main counterpart is Matt Peters.

CHRISTINE MAINVILLE: And is any -- has any reason been given to you about why they won't be more, I guess, collaborative on this

issue?

STEVE NADON: We've been back-and-forth a few times on it. It's -- you know, at one point we said, Just give us your schedule. Just tell us what days so we can prepare. If you don't want us to be there we'll hover around there so if something comes in at least we're in proximity. So they say, no, we cannot tell you what our schedule is. We can just tell you -- I think they told us maybe which stations. I think they said they're going to be testing two stations every week, if I recall. I would have to go back on my emails.

We just kind of gave up and said, okay, you guys say you're not going to flood us with work orders but you still do. We'll manage as best we can and dispute the penalties and say that it was induced because of batching work orders.

Again, you're not using the system as it's designed. You're going in and testing every frigging door to see which ones are at fault. You're not saying, I went in this door and it didn't work today.

CHRISTINE MAINVILLE: The perception,

at least, is that they're not performing that in good faith, is that --

STEVE NADON: I agree, yes.

CHRISTINE MAINVILLE: And there would be some financial incentive in terms of them doing it that way, given the resulting deductions on RTM?

STEVE NADON: Huge financial impact.

CHRISTINE MAINVILLE: And do you know what happened to the discussions or why those -- like, did they stop for any reason?

STEVE NADON: They did not stop, they continued doing it. They seem to take a break when we complain a little bit.

When I say "take a break", they either don't validate as many individual components, but they still visit every site, they still generate reports. It still gets discussed every morning. We now have more meetings than we've ever had discussing silliness, from what I can tell.

What they call oversight is overreach, in my eyes.

CHRISTINE MAINVILLE: Overreach.

STEVE NADON: Overreach, yes.

CHRISTINE MAINVILLE: And when you said you had to prioritize work orders based on what's going to cost most money, in terms of how the events are calibrated, or what will incur a bigger penalty or not, would you say that that correlates to what requires the most urgent attention from a safety perspective or a true critical component?

STEVE NADON: So I'll give you an example of how things work. So the City sends -- let's take this example of a batch of work orders. I'll even minimize it and say there's only four.

So they've gone through a station, Blair, just for the sake of argument, and they come up with one e-tel and three doors that have given them some problem, they want to complain about or put a work order in.

So they send that to our help desk. Our help desk creates the three files. So again, we look at it and immediately e-tels are considered safety and security, that's the highest priority.

So that already is flagged by our control centre -- sorry, our help desk where

they put the proper "KPI", we call it, or "KPM" to set the proper criteria, it's a 30 minute response, a one hour or four hour application. I can't remember exactly but it's something of that nature.

And then the other three devices are doors. And depending on where the doors are, if it's a door to a communication room that's again safety and security because we don't want people breaking into our communication room. So it depends on the alarm. If the swipe card didn't work I don't care, I'm safe. I'll keep that as a lowest priority.

But if he was able to -- if the door didn't shut, the door stayed open, that to me is a safety and security on a communication room. Now, is that a safety and security on a broom closet? Which is what -- that's where we make that interpretation at our help desk.

So we put those criteria in and we set them -- there's a series of questions for each of these work orders that steps the help desk operator to be able to set the proper category for each of these doors. Well, what happens is, depending on criteria that is set, my technician

gets the notice on his iPad and he will go in and address all of these items in sequence. He'll do the higher priority ones first and the lower priority ones later.

And when I say "lower priority", some of the priorities are -- it's a seven day rectification, right? As long as it's completed in 7 days you're done. Well, let's say we do it in 24 hours. So we'll close the work order. Now, once the work orders are closed they all get sent to the City for oversight or review.

What the City has been doing is looking at those and saying, Oh, I disagree with how you catalogued that door. You catalogued that door as a non-urgent, non-critical and you said it would take up to 7 days to correct. You corrected it in 24 hours, great on you, but you didn't catalogue it correctly. We believe that is a safety-critical door. And we believe you should have used the higher penalty and only had 30 minutes to get there and 4 hours to correct it.

So then they recatalogue the work order and now they asses us a penalty of thousands of dollars because we took 24 hours to

close a work order instead of the 4 that they have assigned to that door. And that's where we get into these disputes with the City. And this is done on -- I'm using a door as a simple example. I can list hundreds and thousands of work orders that have that problem.

And some of these work orders run us into the millions of dollars because they're communication alarms, for example, on a system, that is a known bug that one of the developers is working on correcting; it will be patched whenever.

So the work order doesn't get closed in a timely manner but it also has no impact on service. It's a known bug, if we call it, and it will spit out an alarm message that the City -- well, they don't know, right? Because they don't know how to treat communication failures, or communication alarms on the network.

So anything that's a communication alarm on the network to them is, oh my God, my network's failed and I have no communication. That's not really what's telling you. It's telling you that I was supposed to get a message

in one second, I didn't get it this second but it came in the next second, but I'm alerting you. There's an alarm there. So some of these don't get closed because they're in the investigation loop, we'll call it, with the vendor.

And when they finally do close they wrack up a penalty of hundreds of thousands. I think the highest one I've seen is 4.5 or $5 million for some of these work orders, and they are just ridiculous.

CHRISTINE MAINVILLE: Do you have any from Mr. Peters about what, if any, marching order he has on this, or if it's individual discretion?

STEVE NADON: I can't speak to that. I don't know.

CHRISTINE MAINVILLE: And does this practice, or these practices on the City's end, does it have an impact on or prevent RTM from -- or Alstom maintenance from focusing on things that might be more important to focus on from a maintenance perspective.

STEVE NADON: It definitely changes our focus because now all of the people are on

heightened alert. Because we've told them, just because your iPad tells it's a low priority, always keep in the back of your mind that the City can change that at any time and all of a sudden your penalties are going to be in the tens of thousands of dollars.

So we're always looking to say -- the technicians are always analyzing, well, which one do I work on first? Which one should I go to first? And when I'm telling you -- I gave you examples where they're all at one station. A lot of the times two of the work orders are at Blair and two of them at Tunney's Pasture. I have three technicians, you know. They don't all have the same knowledge. One guy might be my door expert, one guys might be my fire control system expert. So which ones do I send them to? So they're always juggling which work order is the best one to work on.

We always say safety first, service second, everything else is after that.

CHRISTINE MAINVILLE: And would you say that you're sufficiently resourced at RTM?

STEVE NADON: We're resourced for a normal work day, not when you have people that

are exercising the system daily to look for any flaw that might exist.

The way everybody interpreted this operational maintenance, if you want, was you would get a phone call that something did not work, not that the City would go into every station every day and test every system that's out there and tell you, Oh, this one may not work or this one might be a problem.

And again, I'm not going to say that all of the systems are failed when we get there. A lot of the times it's literally user interaction. The guy didn't press the button correctly, didn't latch the door behind him. Sometimes there's back pressure from doors because there's balancing issues with the HVAC system.

If you have trains going by as the door is closing there's back pressure that's pushed there. They say, Oh, sorry, you didn't design the system properly and should have taken that into account. Okay, if you want the play that card. But you shouldn't have closed the door when a train was running. I don't know, I can argue both points. If you retry the door a

second time it will work just fine.

CHRISTINE MAINVILLE: And what would you say about how Alstom is resourced for the maintenance piece?

STEVE NADON: That one I can say they're under-resourced, because a lot of times we call for resources on specific problems and they say, We don't have anyone on staff that day for that. Call it a power tech, or a guideway tech, or a signaling com tech. They often have gaps in their resourcing.

CHRISTINE MAINVILLE: And so how is that responsibility divide as a between RTM and Alstom in terms of who's responding to what?

STEVE NADON: They have the penalties -- the flow down is basically, RTG gets the invoice and the City pays RTG; RTG pay RTM a portion of that total pot; and then we pay Alstom their portion of that total pot.

All penalties get flowed down. So RTG doesn't take any penalties. RTM take all the penalties. But anything that's in Alstom's maintenance scope they take those penalties, so that gets withheld from their payment.

CHRISTINE MAINVILLE: So what is that

maintenance scope for Alstom as opposed to RTM?

STEVE NADON: So RTM have the stations, so elevators, escalators, most of the doors. The doors get a little tricky because there's the electronic portion of the door, so the SCADA control that we were talking about earlier and the IAC is the intrusion access control. So those electronic functions belong to Alstom.

The mechanical portion of a door, the door handle, the door hinges, those are RTM. So the doors we have a bit of a grey area sometimes.

So a lot of times what will happen is my team will get to the door, because we get the work order and we'll say, Oh, it's not a physical mechanical, we'll redirect the work order to Alstom.

What else is our scope? The HVAC system, so any of the mechanical systems that's RTM scope. Other than that, all of the systems, if you want, the train control systems, the trains themselves, the guideway, the power for the trains, all of that is in Alstom's scope. The CCTV cameras, all of those cameras are all

part of their maintenance.

CHRISTINE MAINVILLE: And does RTM still have oversight over that and over Alstom generally and their scope of work?

STEVE NADON: We have oversight in general because they're our sub, if that's what you mean, yes.

CHRISTINE MAINVILLE: Is there any in practice? Any oversight or -- I guess you determine where the work orders go, correct?

STEVE NADON: No, they're automatic. They have -- IMIRS goes directly to them as well. So those work orders are directly on their iPads, if you want.

CHRISTINE MAINVILLE: Even in terms of who's responding though? They would see it and know that it's them? They don't need to wait for you to tell them?

STEVE NADON: Yes, it is already defined that way, yes. Now I understand your question. So that's through the help desk.

So depending on the asset, whatever is entered as the asset that will direct whether that goes to my technician as an RTM technician or whether that goes to the Alstom subcontract.

CHRISTINE MAINVILLE: So who is at the help desk? Is that RTM?

STEVE NADON: RTM's help desk. We run the help desk. We get the inputs from the City and from ourselves. I mean, we open our own work orders from time-to-time, Alstom also do that as well.

If they're doing a routine maintenance, or a preventative maintenance, we'll call it, on one of the systems and discover a failure, they will call the help desk and say, Open up this work order because we found some defective device. So at least it gets recorded as a corrective action that needs to be followed up on.

CHRISTINE MAINVILLE: And so you're not co-located, RTM and Alstom, generally? I'm sure there's people all over but how does that work?

STEVE NADON: What do you mean co-located? We're all in the same building.

CHRISTINE MAINVILLE: You are? So are you at the MSF.

STEVE NADON: Correct.

CHRISTINE MAINVILLE: And who's your

main counterpart at Alstom?

STEVE NADON: Right now I would say I'm dealing with the infrastructure manager, the Operational Manager so Neil Steinke on the operation side, and I guess they hired a new General Manager which seems to be my counterpart mostly right now, Peter Keighron I believe is his name. He literally just started about a month ago. So I think I interface mostly with him at the moment.

CHRISTINE MAINVILLE: And you spoke about them seemingly being under-resourced. What would you say generally about Alstom's performance on maintenance?

STEVE NADON: Lacking would be a good term. Under-resourced. They seem to have a training -- a lack of knowledge is probably the biggest one.

These -- the technicians that they have, the power technicians, the guideway technicians, the comm technicians seem to be lacking diagnostic or troubleshooting skills. I don't know if that's just that they don't understand the entire system they've been hired to maintain, or if their management is only

pigeonholing them in to certain aspects, I can't put my finger on that one yet.

CHRISTINE MAINVILLE: Have you seen any improvements over time.

STEVE NADON: It's been in waves. There was some early improvement and then it kind of disappeared. They lost a lot of people. They brought in some new people. Since Peter's been here, this new General Manager, I've seen an improvement. And they recognize it, they told us they're working on resourcing. They found that that was a problem.

They have lost a lot of staff, a lot of key staff. I would say. A lot of knowledge is gone so I think it's going to take time to build that back up.

CHRISTINE MAINVILLE: Is that Mr. Peters or others as well that would have reported that they're working on building up?

STEVE NADON: No, Mr. Peters is on the city side.

CHRISTINE MAINVILLE: Sorry.

STEVE NADON: Mr. Keighron, yes.

CHRISTINE MAINVILLE: So that information you have comes from him about them

trying to do better?

STEVE NADON: Yes.

CHRISTINE MAINVILLE: And would you say, you know, if Alstom's performance is lacking, is that not really RTM's concern at then end of the day because the penalties will flow down, or is there more concern than that?

STEVE NADON: No, I personally am very concerned because -- and this is thrown at me more than once from the City, and I agree with the statement. And it's, the City's contract is with RTM. You guys chose Alstom as your sub. You manage your sub the way you want.

I'm paraphrasing my chats with Matt Peters when he and I talk. He says, I don't care how you get the job done but I'm talking to you, Steve, because you're my contractor. How you deal with it is your problem.

So we take a personal interest here at RTM to make sure that Alstom does their job. We have actually increased our in-house support to basically greater -- to have great better experience on the system so that we can help Alstom along. We can give them our guidance and our wisdom of the network.

I have personally brought in people that I worked with on OLRTC are now in my departments as subject matter experts, we call them, so that Alstom can draw on that knowledge.

We know what we built, we know what we maintain, we're just not the hands-on maintainer because we've subbed that over the Alstom. But since they're not doing it I had my people step in to help them, show them what they need to do, show them where they can find certain things and show them how this particular system works.

So we've had a huge hiring, I guess is what you -- or information gathering by bringing in some key people that worked on the construction side of the project, and keep them now on RTM's payroll to support Alstom because we're just not getting the delivery we expected out of the maintenance contractor, and the work still needs to get done. At the end of the day I still need to maintain it.

CHRISTINE MAINVILLE: In terms of when you arrived at RTM in 2020, what was the state of play at that point into time in terms of your assessment at both RTM, and then we can speak about Alstom.

STEVE NADON: We were transitioning into this new oversight, or call it -- before I arrived I was still talking with RTG. RTM, RTG we're all still one happy family because we're all the same entities, right. The owner structure, or the corporate structure. So they all have a vested interest to keep everybody informed.

So, you know, while I was performing this remediation role at RTG as a project manager, I knew that RTM were looking to restructure because the maintainer just wasn't maintaining. When I say "the maintainer" I am pointing to Alstom in this case, but RTM is still responsible.

So these discussions were in the works before I joined. How do you think we should adopt here, Steve? What should we be doing? And that's what I said, We need to bring in key people. So we brought in a key track person who was the track engineer on the construction side. I brought in a power supply and distribution person. He was my testing commissioning lead for power and supply distribution when I left that role and became the TNC manager. We just

recently brought in our system engineer who knows everything about the network and the systems and the SCADA system.

These three individuals have now taken all of that knowledge and brought it back to RTM. So we can step in when Alstom is not doing their job, or Alstom is deflecting and saying, I can't do my job because I don't have this piece of paper. We can say, Okay, here is that piece of paper. You say you don't have the drawing? I have the people now who can say, I have the drawing, it's right here. What's your next excuse, guys?

So we worked as a group to change the RTM model, if you want, as opposed to just being -- RTM was only supposed to be a -- the facility maintainer and all the rest was to be Alstom. So they only had a very small portion of technical people and a few managers to oversee everything. But now we've got almost a team lead -- not a team lead, a subject matter expert on every facet of the business that Alstom had to maintain for us.

CHRISTINE MAINVILLE: Has that improved things?

STEVE NADON: It's greatly improved things. I think things are getting -- the closure is quicker now. The understanding of the problem is quicker. Where Alstom had no clue. They were like headless chickens, just didn't know how to resolve issues.

CHRISTINE MAINVILLE: Did you understand them at the outset to have -- to not have the experience for maintenance? Like what explains their lack of readiness?

STEVE NADON: I'm going to take you back a few years, I don't know if you want to hear this long saga.

But as the Testing and Commissioning Manager, a lot of the staff that Alstom have on the technical side, the power techs, for example, the signal and comm techs, and some of the guideway techs, actually worked for me in my testing commissioning role.

But as Alstom was starting to ramp up their group a year before revenue service, they put out job offers to have -- and all of my people obviously were applying to these jobs because that's where the next step would have been. They learned the system, they go to

Alstom and now they maintain it for 30 years and everybody's happy. It's a great big relationship.

So early on they had a really good pool of people. They had very knowledgeable people, because I trained most of them. They worked for me, they learned the system.

The problem became -- I was under the impression that that year that Alstom took them away from me, I requested to Alstom, I said, Great. I'm glad that so-and-so got a job with you. I'm happy, I'm thrilled for them. But can you give them back to me and I'll keep using them for on-the-job training. And they said, No, our job starts on RSA. Our contract says RSA is the first day we're allowed to work on the system. I say, you're not really working, you're learning. I'm giving you on-the-job training; and they wouldn't do it. I said, Okay that makes it more difficult. So they did nothing for a year.

CHRISTINE MAINVILLE: You mean leading up to RSA?

STEVE NADON: Correct, leading up to RSA.

CHRISTINE MAINVILLE: To prepare?

STEVE NADON: To prepare for the maintenance.

So the day RSA occurred we said, All right, we're open, guys. Now it's your turn to maintain the system. They said, Oh, hang on, we don't think we should maintain that system yet because there's a two-year warranty period. The OLRT construction have offered a two-year warranty period. We don't want to touch anything. If we touch it now you're going to say we broke it and void the warranty.

So we got into this really back-and-forth over any of the items that Alstom would say, No, we don't want to touch that because if we touch it we're responsible for it now and you're going to void the warranty.

And then they started writing letters about constructor defects, CC defects. Everything was a CC defect. If an e-tel didn't work that was a CC defect, it should have worked for two years. It should be covered under the warranty. So they just refused to do any work for another two years.

So now I'm starting to see Alstom

actually engaged to do the maintenance, they're -- we've seen procedures. We've seen them go out to do preventative maintenance. The problem is, all these people that had the knowledge gave up on Alstom, they left. All of the guys that were my original trained and knew the system, they got fed up.

I had conversations with some of them and they said, I just can't do it any more. Their hands are tied. They want to do work, their management won't let them. They know what needs to be done. Management says, No, don't touch that because if you touch that we're now responsible for it. And this is the fight and the battle that we're in.

CHRISTINE MAINVILLE: And in terms of the trial running period, the maintenance was being evaluated at that point, perhaps not by you, but how then -- if Alstom was not really engaged, as you described it, until RSA, how could they test for readiness at that point on the maintenance piece?

STEVE NADON: I don't recall that side of it. I know the RTM side definitely, I was station availability. I recall some exercises.

I think they did some stimulators, simulated failure of -- I'll use another elevator -- escalator down at Tunney's. It was how long does it take to get a technician on site, kind of thing. There may have been the same on vehicles, I just don't recall that aspect of it.

CHRISTINE MAINVILLE: You mean you don't know whether Alstom was engaged in that in respect of things other than the stations?

STEVE NADON: Yeah, I don't. They definitely -- again, the station would have been under RTM's scope for sure, everything else I just don't recall.

I don't know if there was any simulated failures that they had to respond to. I would assume there were, I just don't recall them.

CHRISTINE MAINVILLE: And how was the backlog when you arrived at RTM in 2020? Was there a lot of backlog in terms of these work orders and other things that had piled up?

STEVE NADON: There's always backlog in work orders. Was there lots? There's always lots. Is there more now? Yes, because I'm entering more now. That's the only way that the

City wants to track everything.

So we have, for example, an annual report from an engineering company that does what they call the station evaluation. I'll just use that, I don't know if that's exactly the report. But we have an outside engineer that walks through and does a complete evaluation of the condition of the station -- ah, "Station Conditioning Report", that's the word I was looking for.

So anything that goes in that report we would have taken that as a work order in the past. Well, now I've directed my staff to say, every single item he has in his report I want those as individual work orders so we can track them one at a time. So again, the backlog is larger but it's larger because we're entering more, if that makes any sense.

CHRISTINE MAINVILLE: What about the maintenance plans and the general organization? I know you talked about a restructuring happening after you arrived, but otherwise was there -- did the plans make sense to you? Were they sufficient or were improvements to be made there as well?

STEVE NADON: So the preventative maintenance plans are pretty well defined within the OEM documentation.

Where I found a big problem was Alstom would take the operating manuals, which define a set of criteria from the manufacturer on what they should do for preventative maintenance, and they would create their own WMS, work method statement.

And somebody has paraphrased the OEM manual. So what was in the OEM manual not every step made it into Alstom's equivalent documentation.

So we found in some of our informal audits or some of our formal audits as well, and just our job oversights, we would quiz Alstom technicians. Like, I'm very familiar with some of the systems and I would say, When did you do this particular step at a switch heater, for example. They would say, Oh, we didn't do that. I said, Well, the OEM manual says you're supposed to check the resistance of the heating elements. He says, Oh, we don't do that. And he was correct. I looked at their work method statements and, sure enough, it wasn't in there.

So somebody had manipulated some of their work method statements to not capture everything that was in the OEM documentation. That, to me, was just bizarre. Why would you create your own manual when you already had one that existed. I understand that Alstom wanted to put their letterhead so that their people could see it, but they weren't following all of the steps within the documentation.

CHRISTINE MAINVILLE: Is that still the case today?

STEVE NADON: We brought a lot of these things to their attention, because we're now auditing their work method statements in detail. The subject matter experts that I talked about, again, know the subject, know the OEM manuals, and are scrutinizing these things closely and saying, Guys, 25 percent of the documentation is not reflected in your WMS, please upgrade it. So that's happening through our audits, our formal audits our oversight.

So the message is getting through, it's getting better, but it's not all cleaned up yet.

CHRISTINE MAINVILLE: I think we might

take a break.

-- RECESSED AT 2:25 P.M. --

-- RESUMED AT 2:41 P.M. --

CHRISTINE MAINVILLE: Could you speak a little bit about the -- your knowledge of what winter testing was done? So going back to testing and commissioning for a moment. Of course you were not involved in the rolling stock, but on the broader network.

STEVE NADON: Specific winter testing, I can't even remember if we had the one that's -- I know we had switch heater testing. There's an SAT test, a SAT testing on the functionality of the switch heaters.

There was an integration test on the rolling stock, I'll call. There's two parts to it. One was -- they call it water fording, so how much water a train could drive through; and then a snow test, how much snow a train could drive through. That's the only test I can recall having executed.

CHRISTINE MAINVILLE: Were there any concerns about the switch heater.

STEVE NADON: During the testing there was not. All of the problems came after the

fact. I was actually witness on the SAT test by the vendor, and it went well. I mean, you know, we had some mechanical bolts and things missing, but those were all addressed, but the actual functionality worked quite well.

The problems developed only later when we had snow. I mean, we did -- the SAT didn't happen in the snow, first of all, it happened -- I can't remember if it was spring or fall. I know it wasn't summer. It was cool but not cold. There was no snow.

But the SAT is designed to simulate winter conditions. If there's no snow, for example, you take heat measurements, you take -- you use freeze spray, for example, to trigger what they call the snow sensor. So the test was designed to be able to test in any weather condition. So that testing went well.

During the service after the fact -- actually not even during the service, during the testing and commissioning of other systems we had to utilize the switch heaters because we had to keep the switches clear of snow so we could operate them, whether that was a manual operation, that's a hand crank I mentioned

earlier, or whether that was through a train control system, that's when we first started to see problems with the heaters themselves.

So I undertook a campaign to have them all reworked by a local electrical company, because we found a lot of shoddy workmanship in the assembly, and that was admitted by Spectrum, the manufacturer.

The issues that we found we pointed to their attention. Wires were pulling out of terminal blocks, wires were not stripped properly. So we brought that to their attention and they came good and hired this local electrical company to do all this work on their behalf, which I supervised or validated after the fact. And all of that rework was done to our satisfaction. That was winter of 2018 maybe.

CHRISTINE MAINVILLE: So this is prior to -- during testing?

STEVE NADON: Exactly.

And then in the winter of 2019 -- so we had already started RSA at that point. Again we had some switch heaters that had failures, some elements that had burned out. And I worked

with Alstom to give them all of my knowledge and say, Guys, this is what I've learned over the last two years as part of testing commissioning. What switch heater behaviour did, what it didn't do.

We would get reports that a switch heater on such a switch failed. And I would say, Great, show me some evidence. I want photographs. I need you to tell me what it didn't do, where it didn't clear the snow. And I could never get that out of Alstom. All I could get is, It didn't work. I said, Fine. I just need to know -- tell me what I can go to the manufacturer with? Show me evidence of where the snow is melting and where it's not. And I just could never get that data.

CHRISTINE MAINVILLE: I'm right that the trains wouldn't have run on the entire line in the winter prior to RSA, correct?

STEVE NADON: No, no, we ran in the winter. We had to clear snow and we were doing testing. The train had run.

CHRISTINE MAINVILLE: On the line but not on the full line? Given that it wasn't --

STEVE NADON: This was in 2019? No, I

would think -- no, we probably didn't have the full line that early. No, you're right. We probably didn't run down at the Tunney's Pasture area. I would say we definitely went from Blair to U of Ottawa for sure in that winter -- let's call it early winter 2019, right? So January, February, March timeframe.

CHRISTINE MAINVILLE: Do you know what dynamic winter testing was done then? I guess that's what you're referencing?

STEVE NADON: Exactly. Some of my testing was done in the winter. We did the pantograph interaction, as we call it, the vehicle envelope. All that dynamic testing was -- some of it was done in the winter I recall. What part of the winter? I don't know. We didn't have to walk through two feet of snow, but I recall walking the track stepping in snow while we were testing these trains.

CHRISTINE MAINVILLE: And did some of the testing criteria relate directly to the winter?

STEVE NADON: No, just the two tests I mentioned earlier. The one that I can recall, so switch heaters. And then the only other test

specific that I can remember for train winter testing, there was one test called -- you know, I can't remember what the name of the test was but there was one to say how much snow a train could drive through. And the test was either incorrectly identified, because I said, This seems odd. It had written 40 centimetres deep snow. And is said, That doesn't make any sense to me. So I think it had been a typo and it was supposed to be 4 centimetres.

But anyway, we went back-and-forth with Alstom and I said, Absolutely not. We're not putting our trains on the line with 40 centimetres of snow. We'd never do that. So I think it was a typo that was in the test. So that was reflected in an update and the test results, and the testing commissioning report reflects that.

CHRISTINE MAINVILLE: Because you would expect that even if 40 centimetres of snow falls it would be cleared before --

STEVE NADON: Exactly. So again, we did do that activity. To be able to test we had to clear the tracks.

We had one really bad winter, that I

recall; we had a lot of snow. It took us -- we couldn't test for several days because we had to get rid of that initial dump of snow so that you could then -- once you got the trains out there -- once the trains are on the track you can run through as much snow as falls because it kind of cleans itself.

The trains keep the track clear, if you want. Like, we actually do that nowadays. If we are expecting a very large, significant snowfall we'll keep trains running through the night so we don't have to stop and clear the tracks. The trains actually clear the tracks.

CHRISTINE MAINVILLE: And so in the winter of 2020, so when you would have been with RTM, and there were some switch failures, if you recall, based on I think failures of some of the safety sensors which -- and you tell me what your understanding on this issue may have been if it differed from this, if you recall, but which may have been activated by snow, the sensors. Do you have an understanding of this?

STEVE NADON: I don't think I understand your question. So, first of all, the winter of 2020 -- just trying to think --

CHRISTINE MAINVILLE: I guess it could be the winter before.

STEVE NADON: I just want to backtrack a little bit, and I'll tell you why. So in my role as the Project Manager or RTM one of the remediation actions was to correct switch heaters. So what we did is we undertook a campaign to replace twelve of the switch heaters from an electric switch heater to a gas fired heater. So I'm trying to understand your timelines.

CHRISTINE MAINVILLE: I think actually this is January 2020 and so you wouldn't have been with RTM yet.

STEVE NADON: That's correct, I was still with OLRTC. That fall though is when we replaced the switch heaters and upgraded the switch heaters as part of the remediation plan, which I did as part of the RTG -- wearing my RTG hat that day. So we completed that work in December of 2020.

So the December 2020 and subsequent January, February, March of 2021, we had the new and improved switch heaters, if you want.

CHRISTINE MAINVILLE: Could you talk

about, from your later maintenance role with RTM, any issues you saw with the MSF as, you know, creating some issues for the maintenance teams in terms of the facility itself and what it was being used for?

STEVE NADON: I'm aware of a few things that Alstom have brought to our attention.

So RTM is responsible for the facilities, the equipment within the facilities. When I say "equipment" I mean the train wash system, the system that delivers sand for the sanding systems on the train, for the wheel lathe that turns the wheels and re-true the wheels, the lifting jacks that lift the train for maintenance, the rail car movers that move the trains that don't have power, the ones that need to be towed, for example. So those are all equipment that RTM needs to maintain as part of this facility.

So there's been a number of breakdowns in these equipments (sic), we address them in a timely fashion. I don't know -- there's been a lot of complaints about them but the systems are the systems that were delivered.

The other system that I can probably discuss is the OCS, the power in the LM bays. There was a long-standing argument between OLRTC and Alstom that the fuses that protects the power supplies for these catenary -- for the OSC in the LM bays, the light maintenance bays, kept blowing. And they kept saying, Your design is wrong. And we kept saying, No, your train is causing this.

So the back-and-forth went on for -- well, it still goes on every now and then. But I think we finally got them to understand that they were not coming in to the -- in the facility the way it was intended. They were coming in too fast or they were -- let me rephrase that. There was some literature that said they should have been coming into the LM bays at 5 kilometres an hour using what we call "train wash mode". The train would only be limited to that speed. When you limit a train to that speed you're also limiting the amount of current that train can draw.

So because of that they were throttling the train. They were trying to inch the train forward with the throttle. And what

they were doing is as you do that you're demanding current every time, so they would pop these fuses. These fuses were long lead, they were very expensive.

So once we sent them a written procedure, and we posted it and said, Guys, this is how you have to do this procedure, that problem dissipated. So that was problem number one.

Then what happened is we had a campaign where they had a problem with the line inductors on the trains themselves. They were getting contaminated with conductive carbon and salt, and everything was getting into this line inductor and it was causing shorts within the housing, the line inductor would short to ground within the housing.

So what happens is when that would occur inside the LM bays that would then -- that electric short that occurred sends a blast of electricity up the pantograph on to the OSC, the power of the LM bay, and again would trip out these power supplies of the LM bay.

So once Alstom reconfigured or reset all of that we had less shorts to ground, as we

call it, which was backfeeding into the power supplies, the problems seem to have gone away.

CHRISTINE MAINVILLE: Would any of this have related to the derailments and the maintenance in the MSF in the late fall of 2020?

STEVE NADON: Nothing of what I just described has anything to do with that. I'm trying to think what the root cause of the derailment was in 2020.

CHRISTINE MAINVILLE: In the MSF so not in the --

STEVE NADON: I know about it because I was here, I was just here. It was, I think you're right, October or November if I recall?

CHRISTINE MAINVILLE: Yes.

STEVE NADON: I think what we finally discovered was a lack of lubrication on the rails. And I may be wrong in drawing that conclusion, but I know we installed -- so the trains lubricate the main line. So they use lubrication on curves to have less friction, to noise suppression, and whatnot. But the system that Alstom designed does not operate in the MSF, it only works on the main line. It's got some programming that it knows that you're in

the yard, for example, and they didn't want to drop any grease.

So what we requested Alstom to do after that derailment was to start to manually grease these curves by hand, like literally slather it on with a paint brush, which minimized the chance that -- because how this derailment occurred was the train went around a very sharp curve, one specific curve in the MSF. And the wheels rub up against the side of the rail, but the wheels are rough because they were just turned on the wheel lathe, so the edge of the rail is rough. So what you end up doing is to start to climb the side of the rail because you have two rough surfaces that have very little lubrication to keep things fluid.

So what we've done since then is we've installed a yard lubrication system. So we have a system now that lubricates the rails as trains go by. It basically pumps -- I won't use the word "oil" because it's not oil, but a lubrication, we'll call it. And as the trains go around the yard that lubrication is transferred to all the rail systems.

CHRISTINE MAINVILLE: And what about

the competition for space at the MSF for vehicle manufacturing and retrofits, and other things like that? Did that have an impact on maintenance from the time you were with RTM?

STEVE NADON: It's still a juggle. We do that -- I mean, we literally had a meeting yesterday on it because Thales is still working on the final stages of commissioning the yard in what they call a UTO, unattended train operations.

These trains are designed to drive themselves, you literally click the mouse and say, I want train A to go from this point to this point. You send that command to the train and it'll do it. It'll set the routes and do everything it's supposed to. So that feature does not exist yet, they're still in the commissioning stages of it.

So that's one competing interest. We do have the production, as you say, the manufacturing that are still here. They're still doing assembly work on the trains that come from Brantford, they're not 100 percent complete. And then we have the daily routine maintenance. So these three competing

activities are a challenge to schedule, but we manage to schedule.

Right now the one that takes the back seat is always Thales, they don't like that but we have to put out service. Service is the number one goal for us. To make sure we have the fleet available to get out 15 trains a day. So until that is achieved you can lose your window, let's just say. If something gets bumped it's Thales.

CHRISTINE MAINVILLE: Which is why the yard is not yet automated, which is what you're referencing, correct?

STEVE NADON: This is the excuse they give us, yes, it's all our fault. Even though I'm saying, Why wasn't it commissioned before you delivered everything? We have a difference of opinion as who's delaying who.

CHRISTINE MAINVILLE: Right.

Can I ask you, was there any ATO, automatic train operation, testing during testing and commissioning?

STEVE NADON: Oh yes, absolutely.

CHRISTINE MAINVILLE: And would Alstom have been involved in that?

STEVE NADON: That I can't answer. Because the way these trains are tested -- let me think about -- I'm trying to think about testing commissioning. I'm thinking more of a new train the way it's done. And all the trains would have had this activity I'm about to describe.

So every train that comes here the first people to touch it is Alstom. Alstom get first crack at the train. They are using the train on what we call the test track. Alstom doesn't have drivers, so the only people that are allowed to drive the trains on the main line is -- at this point is OC Transpo. So they, under Alstom's guidance, take the train out there and run it at various speeds, all in manual control. Because Alstom is just exercising the brakes, the functionality of the train. Anything that is train-specific Alstom is doing their validation, and they call that the Alstom dynamic PICO. So they do that portion.

Once Alstom signs that off saying they've done that portion, they'll sign a certificate saying the train is safe for train

testing. It then gets handed to Thales.

Thales will then do their portion, which is called the Thales dynamic PICO. So Thales will spend -- I can't remember how many hours, there's four or eight hours of testing, I can't remember exactly what it was, on the main line. On a very -- again I call it a section of the main line. And they will start to integrate the systems, right?

And one of that portion of testing is ATO that you talk about. They'll turn on all the computer systems, they'll make sure that the train communicates through the CBTC, computer systems. And one of the tests that Thales do is this ATO test, which means the train can be put in automated mode, it will run based on the Thales commands and it will run at whatever speeds are designed through that control system.

CHRISTINE MAINVILLE: Who would determine who needs to be there in terms of Alstom being involved or not in any particular test?

STEVE NADON: Well Alstom is -- so this is all through OLRTC. They still have a team there today that are still designing that.

They witness the test. They're always on board the test, on the Alstom section and what is known as the Thales section.

Again, from my -- I'll put my RTM hat on, I don't care. You just give me a signed, sealed, delivered. You need to send me a bill of sale and a safety certificate and then that train becomes ours to be able to get from the City. All those other activities are done through OLRTC.

CHRISTINE MAINVILLE: But when you were at OLRTC doing testing and commissioning --

STEVE NADON: I wasn't doing the trains. I'm aware of it but I wasn't doing the train testing.

The same individuals are still there that were doing it back then. It's still with Dr. Sharon Oakley and Joseph Marconi. Those were the people involved with the rolling stock.

CHRISTINE MAINVILLE: Including for testing and commissioning?

STEVE NADON: Correct.

CHRISTINE MAINVILLE: Can you talk about the interfacing between the various people -- once you're at RTM, the various

entities that need to interface, OC Transpo as the operator, Alstom of course, and then also I expect in some respects Thales or OLRTC? And how that works? What arrangements there are in terms of how these various people interface.

STEVE NADON: I'll give you examples, I guess, of -- let's start with regular occurrences.

So OC Transpo, RTM and Alstom meet on a daily basis at various forums. Whether it's daily maintenance, I'm trying to think what it's called. We have it at 9:30 every day. The daily maintenance meeting.

There's also daily operating meetings where we review yesterday's performance so we can attribute any -- what they call "lost kilometres". So if a train didn't do the number of round trips it should have you'll be assessed a penalty.

So they look at those lost kilometres and determine whether it was a train problem, operator problem or something else. If it's a train problem those are what they call project-co availability hits, if you want. So that daily operating does that analysis.

Did an operator do something incorrectly? Did they stay at a station too long? Left their doors open because they had to tend to somebody? Was there a passenger in distress? Those are not project-co. They are non-project-co costs.

So there's that review of the data and assigning where those lost kilometers, if there are any, get attributed to which party. So that's that one meeting.

The daily maintenance meeting to discuss all of the maintenance activities that occurred. So once again that's those three parties, RTM, Alstom and the City.

Since the derailments we now have a vehicle report and action item meeting with the City. This is a senior level meeting, if you want. So myself, Mario and senior people at the City. So we discuss, again, yesterday's performance. What the issues were? Were there any? Things have gotten better -- how many trains did we have in operation today? So it's just a half hour snapshot of a daily overview.

Throughout the week there's various other meetings where we discuss the penalties,

as we talked about. There's a weekly dispute resolution meeting where we try to say, you know, when the City has reassessed these alarms, as I mentioned earlier, we debate our case, they listen to their case. If we can't resolve it it gets escalated to the next monthly committee where we'll discuss it again. That's the daily, daily stuff we do as an organization.

Not considering all of the -- I don't know how many emails a day we share in all those directions. Myself to Alstom, myself to OC Transpo and vice versa. There's queries, questions, letters. Letters, my God, how many letters do we get back-and-forth demanding information, looking for reports.

So that's that side of the business. So that's pretty much those three.

Now I'll throw you into the Thales and OLRT side.

CHRISTINE MAINVILLE: And just before, you mentioned "Mario", is that Mario Guerra.

STEVE NADON: Yes, my manager, my CEO.

CHRISTINE MAINVILLE: And those meetings with the meeting those would not include Alstom, correct?

STEVE NADON: No, Alstom is there as well, yes.

CHRISTINE MAINVILLE: Who is there on behalf of Alstom?

STEVE NADON: Senior management right down to I want to say supervisors to managers. So we've had Jeff Gaffney, we've had Peter Keighron, we've had Josée Ouellet, who is senior VP, I think, within Alstom. At various times various people pop up. They had their quality control manager, Jean Francois, his last name escapes me at the moment, he's attends on a regular basis. It's a well-attended meeting.

CHRISTINE MAINVILLE: Okay.

STEVE NADON: On the other side now, when you talk about how does Thales, or others, get involved? So this we do through our maintenance planning. So if you want to do any work, or if you want to do any testing on our alignment you need to come up with your test plan two weeks in advance.

So those test plans are submitted to myself and my team for review, and we then present them to the City. And when I talk about Thales and OLRTC, it also applies to ourselves.

Because we have to present these test plans and these requests to the City so they can validate that we're allowed to do the work.

Such as, in my case, for example, I might have a work order that says I have to repair a broken floor tile in one of the stations. I have to make a request to the City, Mr. City, may I do that job on September 10th at -- between the hours of this point and this point?

And they will back with a slew of questions. Well, is it in front of an escalator? Is it in front of an elevator? How are you going to delineate your work zone? We go back-and-forth. This is just ridiculously monotonous work.

CHRISTINE MAINVILLE: Why is there a need for City approval?

STEVE NADON: Very good question. Maybe if you're deposing the City you can ask that and give me that answer. It's ridiculous. They handcuff us at every turn trying to do the job they hired us to do. They second-guess everything we try and do and it just draws the process out and it makes -- they want two weeks'

notice for that process to take effect.

And I described, you know, a very small one. Some of them are larger jobs which do take planning and co-ordination, but at some point it gets ridiculous. But, anyway, there is a process in place, that's really all I wanted to tell you.

If Thales follows that process, they make the request to us, they say they want to do the specific test in the yard on a weekend, as an example. So then we have to solicit input from Alstom, solicit input from our own control centre to make sure that there's nothing else going on, solicit input from two stages of Alstom, there's Alstom Vehicle Maintenance and Alstom Infrastructure Maintenance, because they don't talk amongst themselves very well. So you to probe and make sure they're not doing OCS inspections, as an example, the same day Thales want to do vehicle testing in a certain section of the MSF.

CHRISTINE MAINVILLE: Are there too many interfaces in this project, at least from your RTM perspective?

STEVE NADON: Absolutely. Again, I'm

the maintainer, I should have full autonomy to maintain your network.

Tell me, Maintain it. Give me 15 trains a day. I don't care how you do it just make sure they everything is safe.

We can do that. We can report on it. We can give them statistics. But at every turn we have to justify everything we want to do.

Even within their own organizations they trip over themselves. I'll get approval from Matt Peters, for example, to use a scissor lift on the platform to change light bulbs in service. And again, we've gone through the plan where we say, We won't park the scissor lift in front of an elevator in case somebody needs to use it. We'll have flag people watching the elevator.

And then all of a sudden my people will start the work, because they were told they can, and we'll get a -- we'll get somebody on the loudspeaker saying, Get off that lift. You're not supposed to be in the station during the day. You're suppose to do that in engineering hours only. So this is the control centre watching on video, seeing that we're

doing maintenance and second guessing.

They don't seem to have their own priorities aligned in-house where they're talking to each other and establish that we are allowed to do certain things and not allowed in certain times.

We try to limit the amount of work we do during the peak periods. They consider their peak 6:00 a.m. to 9:00 a.m., and 2:30 p.m. to 6:00 p.m. So there's the two -- the morning peak and the afternoon peak. We limit our activity, but after that we direct traffic. We can let people know. We put up cones and tell you where we're working.

CHRISTINE MAINVILLE: And how did RTM manage change control?

STEVE NADON: We have a procedure, a process. There's a change management document that's out there that describes the process. So in this particular case I'll use a vehicle example.

Alstom will make a request to the Change Control Board, I'm the Chair of that Board. We'll meet to discuss the changes they want to put forward. We'll present that to Matt

Peters on the City side. He'll sometimes approve on the spot -- actually he's never done that, let me take that back. He usually takes it away to an audience, I believe, of his counterparts, I don't know who they are, and either approves the request, denies the question or requests more information, but there's a lot of back-and-forth on that aspect.

And then typically if a change is granted on a vehicle, a software change for, I don't know, whatever, something that they want to modify. If it's agreed there's a test phase and then there's a deployment phase.

So there's a -- part of your test plan has to say, I'll make the change on this particular vehicle. We'll run it in engineering hours to see that there's no down side to the change, there's no backwards incompatibility, for example. So that's test number one.

And then you to submit a report to the City. That could just be an email saying, The test passed, I want to go to the next level of testing.

The next level of test was typically run the train in -- I think it was late evening,

like 8:00 p.m., until closing for two nights and again report back to the City. Did you see any anomalies? No. Great.

Then you're allowed to move to the next stage. The next stage is you run one train for 12 hours on a weekend, and if that passes then you're allowed to run two trains on a weekend. And if that passes you can then say, Here's my test report. You have to say that you passed all these steps. And then you re-apply now to say, We believe -- we've met all the criteria. This is a valid change. We would like to request deployment against the fleet.

The City take that, they look at the report, they question it. They say, No, you said you were going to run 12 hours. That train only ran 11 hours and 40 minutes. We reject your test. Start again. It's that silly. There's very little wiggle room.

We do have some times where we've negotiated some changes and they say, Okay, we'll bow on this one because it's not something critical that they wanted exactly 12 hours of testing. Sometimes we have 18 hours of testing. It just depends on how many trains are out there

and what's going on on that Saturday or Sunday.

CHRISTINE MAINVILLE: Have there been any issues with change management that may have had an impact on the performance of the system?

STEVE NADON: I can only think of one that ever became an issue. Gee, what was it? There's one that we had to roll back. I don't even know if it went across the entire fleet.

During one of the Thales retests, we'll call it, of a vehicle that particular software change that was made in an iteration, I'm going to say, a month or two prior one of the systems didn't behave as expected. And after digging they realized there was an error in the code so we had to roll that back. And I had to stop the release of that version of software from being deployed on other trains, and roll it back on the trains they had already deployed it on. That's the only one I can remember, and that was maybe six months ago.

CHRISTINE MAINVILLE: First of all, you knew that OC Transpo -- or did you have an awareness that OC Transpo was not a mature operator -- never operated trains, correct?

STEVE NADON: They had operated

trains. I mean, they have the O-Line, the O-Train, but I would still not consider them a mature train transit system operator.

CHRISTINE MAINVILLE: Were there -- did that manifest itself in any way or did you -- what did you -- how do you perceive OC Transpo's level of experience to be and preparedness once you arrived?

STEVE NADON: Again, we had a lot of internal discussion, my colleagues, my managers, for example. During the construction phase we kept saying, it's unfortunate some of the questions and queries we were getting, because you could tell it was from a non-mature transit organization. When I say "transit" I'm going to use train transit because they are a bus transit.

We always said, this project would have been so much easier if it was an extension of an existing line. If it would have been building, I don't know, another section of the subway system in Toronto, or Montreal, or Vancouver that already existed. Because the parties would have known what to expect, how things rolling out. We didn't feel we had that

understanding from OC Transpo.

But I have to be careful when I say "OC Transpo", because there really were two entities in the City. There was O-Train constructors who were, I think, the prime, and OC Transpo is the operator of the system. In my experience even those two entities didn't agree, didn't get along.

It was very odd, all of the testing that I explained to you earlier, the testing and commissioning, was all done with O-Train constructor as a witness, not OC Transpo. OC Transpo was just the train driver. They didn't get involved until later stages when we started to look at operational scenarios. O-Train constructors were the ones that were vetting the system.

CHRISTINE MAINVILLE: Are they not --

STEVE NADON: The same City?

CHRISTINE MAINVILLE: Well, they're the city but is that the rail implementation office that became --

STEVE NADON: Yeah, exactly. They did change their name. O-Train construction is now used RCP, you are correct. That is what they

used to be called, OCT -- they used to be --

CHRISTINE MAINVILLE: RIO.

STEVE NADON: Yeah. OTC and OCT, I used to get -- it was O-Train construction and OC Transpo. Now I think they were probably getting themselves confused and that's why OCT is now called RCP, rail construction project.

CHRISTINE MAINVILLE: Now it's RCP.

STEVE NADON: Yeah, it's confusing.

CHRISTINE MAINVILLE: In terms of the various issue you mentioned with, for instance, Alstom, Alstom's lack of preparedness or resourcing, issues of that nature relating to maintenance, would you -- what role do you see that having had, or potentially had in respect of the various breakdowns and derailments that the system encountered?

STEVE NADON: On the derailment side of things I don't know that there's a link there.

Again, we're still looking for the root cause analysis on the August derailment. Until we know that I don't think we're sure if it's going be a component problem or a -- I don't know. We're still waiting on -- I mean,

every week we're going to a meeting on that one. I'm still waiting on a final determination.

On the second derailment, as a direct result of staffing problems, I guess, or improper torquing procedures is what it ended up being, they hadn't torqued the bolts correctly. So would you put that as a staffing problem? Or a training problem? Or a -- I'm not sure. I don't know if it as an oversight problem if they didn't have the proper QA process in place. But that's where that essentially fell through the cracks.

CHRISTINE MAINVILLE: And do you have any understanding of -- in terms of operations whether -- because I understand the train ran for quite a while for the second derailment after it derailed?

STEVE NADON: Correct.

CHRISTINE MAINVILLE: Do you have any information about, you know, the extent to which the operator of the train should have been able to stop the train more quickly? Or make observations about certain -- about a failure?

STEVE NADON: I'll take you through that entire day, I guess. So I was actually a

passenger on that train when it derailed, or let me rephrase that.

I was on that train prior to its derailment. I got off at that station where it had derailed. I had my family on there, my grandchildren just going for a joy ride. We were taking the train and it was the first time on the train, they were excited. We took it from Blair at -- between St-Laurent and Tremblay I had heard a clinging sound beneath me and I thought a cable had come loose, or something was dragging. So I told my wife, We're going to get off at the next station because I don't think this train is going to make it to our final destination, it's going to get pulled out of service. We'll just take the next one.

So we got out at the train station at Tremblay, and I was on my phone calling the control centre to say, Take this train out of service, when the train departed.

And as it departed it kicked ballast up all over the platform. Immediately I knew it had been derailed. It was no longer -- all wheels were not on rail. There was at least one set of wheels not on the rail because it was

kicking all this debris up.

So that is that portion of it. So I was on the phone trying to get that train to stop.

I don't know why -- I don't know what an operator was feeling. Because we heard interviews from that operator saying he felt nothing. He didn't notice that there was any strange behaviour in his train.

One thing, the logs or the downloads that Alstom have obtained is, I think I mentioned earlier when we talked about the MS, there's a sanding system on board the trains. Trains use sand for traction.

If you're not getting -- because you're steel on steel, and if you have moisture on the track, or if you have ice build-up the train will disperse sand so that the wheels can grip to give you some traction to get mobilized.

And Alstom reported that during this incident after the derailment there was a light flashing at the operator's control -- they call it the DDU, the driver display unit, indicating sand being dropped consistently. And they said that should have registered to the operator that

there was a problem here. You don't just drop that sand on -- and, again, it's like every second, on a routine basis. And the reason it was happening is that that wheel that was off was spinning freely, there was no traction there. So that's why that indicator was there.

But whether the operator didn't see an indicator or ignored it, I can't speak that. We were not allowed to speak to the operator.

That was, I think, one sign that he should have stopped.

He said he didn't feel anything. I could probably believe that because he was in a lead car not the car that was actually derailed. So maybe he doesn't feel any motion in the back end of the car, which is quite a ways back. It's almost A 100 metres away from where he is. I'll give him the benefit of the doubt there.

But the other interesting fact is, there were other passengers on the train that I was on, they didn't feel anything either. I kind of felt something because I, I don't know, I kind of knew what it normally should sound like. Maybe they were either immersed in what they were doing, but they never felt or knew

anything.

I'm assuming if the person had been close enough and looking out the back window -- oh you can't really see out the back window. They would have saw the cloud of dust behind them that I saw, but none of that was reported.

So what stopped the train eventually is the bogey was dislodged in such a way that it was hanging right of the vehicle as it made that climb up the hill and starting to make that curve.

So the bogey and the traction motor that was outside the vehicle envelope, as we call it, struck the signaling system. And when the signaling system, this is part of the safety teach of the Thales system. If Thales doesn't see a proper signal it EB's, emergency brakes the train. And that's what happened in this case. It said, I don't recognize if my switch is in the correct location or the not correct location. Because the control system got hit by the bogey, or the gearbox, I'm not sure which one hit exactly, but whatever dislodged that function is what caused the system to react and emergency brake that train.

CHRISTINE MAINVILLE: You mentioned not being able to speak to the operator of the train. Is there, from your perspective, your role at RTM, a lack of -- are there obstacles to information sharing that impact your ability, or the maintainer's ability to perform their work?

STEVE NADON: Oh, absolutely. Absolutely.

We -- the CCTV system, for example, is vital, I mean, it gives you a lot of information. We are not allowed to -- we are allowed to use it in the course of maintaining the system. We're not allowed to use it for any investigational purposes. We're not allowed to, you know, for example, if the City reports an intrusion in a specific spot and we want to say, We want to see who it was. The City says, You can't do that. That's their job to patrol the people, we'll say.

We just want to see what they did. Did they force something open? Did they jam a screwdriver into a door? They won't allow us to do that. We have to make written requests for any viewing of CCTV footage, and even then it's not always granted.

We've had occasions where they say -- I'm not even sure if it was on the derailment specifically, it might have been, where we wanted to see the footage from the vehicle. Because there's on-board cameras on the vehicles and we wanted to see the front view or the rear view. I don't think it was derailment but there was another incident we want to look at.

And so we requested it in writing and the City said, Oh, we looked at it. There's nothing there for you to see so we're not going to provide it.

So they're making the call without having us and our experts -- don't forget, there's expertise here that understand trains and maintenance and networks. Maybe the City doesn't see something but we might. We've often lost that challenge.

When it comes to their operators we are not allowed to speak to any of their operators. We've never been able to. They'll get transcripts for us. Radio transcripts we can request.

In this case of that particular individual that was driving the train that

derailment day we were given his witness statement that they asked the questions, but we weren't allowed to ask questions.

CHRISTINE MAINVILLE: So what reviews were undertaken following the derailments?

STEVE NADON: I don't understand.

CHRISTINE MAINVILLE: Well, in terms of, I believe, for instance, both on RTG or RTM's, but also the City side I understand there would have been some reviews or investigative work done?

STEVE NADON: On the derailments themselves or on the procedures after the fact?

CHRISTINE MAINVILLE: Well both.

STEVE NADON: Well, again, there was -- obviously it was complete chaos. The second derailment, in their eyes, in a short period of time. Ground the fleet. Start the inquisition. Look for everything. So there was ongoing scrutiny.

There was debate over what happened, even after we knew, within, God, I want to say less than a week, in a few days we knew what the root cause was. It was evident to us what had happened. Somebody had not tightened the bolts

on that specific gear box.

After making that hypothesis, and then looking into the records and finding that the torque records validated that it wasn't done. It was clear to us what happened.

But then the City continued on a campaign of, no, you need to produce a complete return to service plan, and it had to include volumes and volumes of information. And they wanted org structures. They wanted to know how your organization is going to be restructured so it doesn't happen again.

They brought independent reviewers in. They brought in TRA as a subcontractor to then scrutinize everything we're doing, and that's still going on as we speak.

CHRISTINE MAINVILLE: And do you know whether anyone was involved before TRA, on behalf of the City?

STEVE NADON: Yes. The City had originally -- I guess it was the City Manager, Steve Kanellakos, who announced that the Transit Commission would bring in a third-party independent reviewer.

So originally they selected STV, very

briefly, I'm going to say for a day, maybe two, and then realized that they were not truly independent because they had already worked on this project as a City consultant before.

So shortly thereafter, literally two days into that, we were told, no, STC would no longer be the independent. The City was looking for a new one.

I don't know if they had one immediately, but shortly thereafter TRA was appointed as the new, independent third-party reviewer from the City side.

CHRISTINE MAINVILLE: And have you been made privy, or you or others at RTM or RTG, to any of TRA's findings, reports, anything like that?

STEVE NADON: I don't know that I've seen anything official. I mean, there's been some -- I saw the report that they gave to Transit Commission. Because I think there was a transit update given a month or two after the derailment. I saw that interview.

Reportwise I don't know that they've ever produced a recommendation is, I guess, what I'll be looking for.

They seem to only be looking -- they seem to only be reviewing our data and giving us feedback on it, not necessarily producing something of theirs that dictates anything. If that makes any sense.

We don't seem to be getting a lot of recommendations, positive feedback. It's more, you know, show me how you've done this. Thank you very much. Where can I find this information? When did you do this particular activity? So there's been a lot of that, a lot of interrogation, but I haven't seen much on the positive recommendations, or you should do this instead, or do it this way.

CHRISTINE MAINVILLE: So were any changes put in place following the derailments? Were any changes seemed to be needed or -- whether for you or Alstom?

STEVE NADON: So the short answer to that is, yes. There's been a lot of changes that have been put in place.

Alstom have changed a lot of their -- I won't say record keeping, the quality control is maybe the right word. They have enhanced some quality control, in situ. They have

rewritten a lot of their procedures. A lot of peer reviewing and then more spot checking. Changed a bit of their management structure I believe, as did RTM.

We were already leaning towards more of an oversight role with Alstom. So we kind of restructured a little bit here as well, and that was all presented in the return-to-service plan that the City requested.

CHRISTINE MAINVILLE: So you're saying even though RTM was heading in the direction of increasing oversight over Alstom it was amplified further?

STEVE NADON: It was now formalized. We put it in the document and we showed the actual roles and responsibilities.

CHRISTINE MAINVILLE: Do you know whether any changes were made to operations on the OC Transpo side?

STEVE NADON: I don't.

CHRISTINE MAINVILLE: Do you have any view as to the potential root causes of what led to a number -- not just the derailments but a number of the issues that the system has encountered, just from a very kind of high

level? Things that might have contributed to why the system as experienced a significant number of issues?

STEVE NADON: I mean, I think it's very well documented in the remediation plan, that was why it was brought in in that short period of time for April to September, for example.

I was working on the remediation plan prior to that, but we all kind of had a come-to-Jesus moment, if you want, in January when passengers got stranded on New Year's Eve, I think it was. A lot of us got called in on New Year's Day to have a sit-down with RTG and start formulating, what the heck is going on? Why were we having these problems?

And as I think I mentioned earlier with that line inductor problem where the shorting on the top on the roof car was a significant finding.

So all of those investigations and reviews were -- are well documented in the remediation plan, which we've -- are either have taken care of or at 90 percent completion.

Some of it was literally just

documentation and processes, but the functionality, the verification of things, again the line inductors have all been replaced. There is a complete OCS review. We've reviewed the entire catenary system and made sure it was all realigned and verified.

So I say that there's 14 key items in there. There's a Thales software update because there was a section in the Thales software which would cause emergency braking in certain instances.

Well, any time you emergency brake a vehicle you end up causing these flat spots. The wheels become -- they have a flat area on them, so the trains have to come in and get machined so you take that train out of service.

So all of these improvements that were done over the last, I would say, year, year and a half, whatever that timeframe is, have all made the fleet of Alstom vehicles more resilient to where they probably should have been from day one.

CHRISTINE MAINVILLE: So everything on that list has been addressed?

STEVE NADON: Yes, it has.

CHRISTINE MAINVILLE: And to be clear, this is the one in 2020 prior to the derailment?

STEVE NADON: Yes, it is.

CHRISTINE MAINVILLE: So who contributed to that plan in terms of entities? RTM had input, RTG, OLRTC, or other?

STEVE NADON: All entities. Alstom, RTG, RTG managed it, we'll call it, RTM, OLRTC, Thales, Alstom, so all the subcontractors. It just depended on what system it was going to affect.

Consultants were brought in. JBA was hired, I believe by RTG, or RTM, I'm not sure which organization, but a consultant firm from the U.K. were brought in to oversee some of the repairs, or some of the modifications Alstom were proposing.

They instituted some visual management tools to be able to track things better. So there was a lot of work put into that remediation plan.

CHRISTINE MAINVILLE: Do you have any sense of why the items that were addressed there weren't resolved earlier prior to RSA?

STEVE NADON: Because they didn't

develop prior to RSA, they weren't noticeable. They didn't materialize themselves.

CHRISTINE MAINVILLE: One question I forgot to ask, how, when you arrived at RTM, were the preventative maintenance plans? Was there any ability to do preventative maintenance?

STEVE NADON: Oh yeah, they existed. The plans had already existed. There was a schedule of these preventative maintenance plans. Were they being executed? What we're finding is some were, some were not. Alstom chose to do the ones they felt were necessary as opposed to following the OEM manuals, as I stated earlier.

CHRISTINE MAINVILLE: Was there, as time passed, challenges to doing preventative maintenance based on the other pressures on the systems that you mentioned? You know, work order backlogs, and things like that?

STEVE NADON: They were late. A lot of times they were late. I think if you're looking at it in that regard, work orders may have gotten in the way of -- let's say a specific -- let's call it a six-month

preventative maintenance by end of May, you know, based on the schedule. And maybe Alstom didn't get to it until two weeks late, three weeks late. They would say, Our engineers evaluated it and it's not -- it wasn't critical, or it didn't have an impact if you were -- because, again, the preventative maintenance always had a tolerance in it, and I'd have to go back into the records to see what it is.

But, as an example, a one month preventative maintenance might allow you a 7-day, plus or minus, buffer. A 6-month might allow you a 30-day buffer. So sometimes they were okay, they were within their buffer and sometimes they were outside that window.

So we challenged them on that. Why were you late? We just didn't have enough time. We had a concession. They called this concession review from their engineering group within Alstom that said they allowed them to extend the interval of the preventative maintenance schedule.

CHRISTINE MAINVILLE: Can we go off the record.

-- OFF-THE-RECORD DISCUSSION --

CHRISTINE MAINVILLE: I just wanted to ask you about testing. In terms of full integration testing, when the trains are running, is it the case that only some trains -- some vehicles were run? I know you weren't directly involved in the vehicle testing, but from your -- you were involved in integration testing with Thales' system and that piece of it. Were only some of the trains run as opposed to the entire fleet?

STEVE NADON: That's safe to say, yes. You wouldn't test every train in every scenario, because what they're doing is you're doing qualification tests. You're not doing -- you're validating a network.

So, for example, one of the integration tests would have been 10 or 15 trains on a line, I can't remember what it was. So you have a very large volume of tests -- of trains there.

But would I say, Okay, we have 30 trains in our fleet. Sorry, 30 cars, there's 34, but those other four trains, do we run another scenario where we test one more time and we swap a few trains out? The answer is, no,

you wouldn't do that. That's not how you would design your tests.

Because the tests that you're executing isn't a train-specific exercise, it's a -- it's how does the system behave with that volume of vehicles on it?

CHRISTINE MAINVILLE: And you did have the volume that you required in order to simulate a real experience?

STEVE NADON: Yes, I believe so. I'd have to go back into every one of my tests in case there was one that required 15 and I had 14, I don't remember.

But, again, that would have been flagged as a deficiency. Let's say we did do that, right? The test required 15, I only had 14 because Alstom hadn't manufactured enough yet.

We would have run the test anyway and had the City approve that as a waiver, that's one option. Or a deviation where we say, we as OLRTC ran this test anyway with 14 trains, and wrote on the test results that it was a conditional pass, or a pass with a defect, and that defect gets recorded on the minor

deficiency list. And the minor deficiency list is what gets put into the record at substantial completion.

But at some point that defect needs to get closed off. So whether that got done at trial running, or whether that got done at -- I don't know, first week of revenue service. At some point that deficiency test, or that specific caveat would have got revalidated somewhere, approved, signed off and closed.

CHRISTINE MAINVILLE: I just want to make sure that there's nothing more you wanted to say that I may not have asked that you think we should know?

STEVE NADON: No. I think I've answered more than I thought I was going to answer today.

CHRISTINE MAINVILLE: Thank you very much everybody.

--- Concluded at 3:48 p.m.

REPORTER'S CERTIFICATE

I, HELEN MARTINEAU, CSR, Certified Shorthand Reporter, certify;

That the foregoing proceedings were taken before me at the time and date therein set forth;

That the statements of the presenters and all comments made at the time of the meeting were recorded stenographically by me;

That the foregoing is a certified transcript of my shorthand notes so taken.

Dated this 21st day of April, 2022.

PER: HELEN MARTINEAU
CERTIFIED SHORTHAND REPORTER

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