MANITOBA CLEAN ENVIRONMENT COMMISSION

LAKE WINNIPEG REGULATION REVIEW

UNDER THE WATER POWER ACT

VOLUME 3

* *

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THURSDAY, MARCH 12, 2015

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THURSDAY, MARCH 12, 2015

UPON COMMENCING AT 9:30 A.M.

THE CHAIRMAN: Good morning. Welcome back. We now resume cross-examination of the Manitoba Hydro panel. There's been a bit of a horse trading this morning, so first up will be Black River, followed by the Consumers Association.

So Black River, come forward, please. Would you please introduce yourselves for the record and then proceed to your cross-examination.

CHIEF ABRAHAM: My name is Chief Abraham from Black River First Nations.

MR. KULCHYSKI: I'm Dr. Peter Kulchyski, speaking here in capacity as an advisor to Black River First Nations, and in my other capacity with Kayperg (ph).

MR. DUPLASSIE: And I'm Ryan Duplassie from the University of Winnipeg on behalf of Black River.

CHIEF ABRAHAM: Before I turn over to my colleagues, I'm just going to ask a couple of questions.

First of all, I guess we welcome this opportunity to speak here. In regard to the

regulation of lake water, we have been asking for funding from the Province of Manitoba and also from Hydro at previous times in regard to First Nations being able to do a study on their own to see whether the impacts that they say are minimal are verified. And we have always faced resistance from both parties to state that -- basically, Manitoba Hydro is stating that there is minimal impacts to the First Nations in the southern basins of Lake Winnipeg. But in our presentation that we did to the CEC, it clearly shows that we are majorly impacted. We had been losing land erosions.

We have also had the province of -- not the province, but Manitoba Hydro consultants come out to our community. We were elected in, in 2013. In about August 2013, there was a representative from Manitoba Hydro that came out asking about the impacts that we have had. And we explained to him the impacts that we have been facing. And just to take us up further, the same consultant or representative from Manitoba Hydro, they came out previously under the previous Black River First Nations leadership, and it's always been the same thing, we are always faced with

erosions. And to date we haven't had a response from Manitoba Hydro.

And if you could see the impacts that we're faced with, and we keep asking from both parties, which is Manitoba Hydro and also from the Province of Manitoba, see if they would fund us so that we could do a thorough study on our own on the impacts. If you are so sure that there's no, very little impacts to the southern basins, why wouldn't you give us that opportunity to verify that on our own?

The other question that I have in regard to the regulations of the lake water, all this erosion that has taken place is going some place. Does it drain out or does it settle to the bottom of the lake where it increases the water level on the lake, making it wider and wider?

We had a picture, and unfortunately we only had it on a cell phone at the time. But since then we have been able to get this picture and be able to show where big tracks of land has been broken away from our area where there was an abundance of wildlife that used to exist off of it. And it just basically -- there's two chunks of land that broke off from our territory and

floated out to the lake. So if there's little impact to our community, we question, why can't we get that funding in order to do a proper study for ourselves to verify that there's very little impact? Miigwech.

THE CHAIRMAN: So I think there were two questions in there. One was a question about funding, the other one was a question about where does the land that erode from the shoreline end up?

MR. HUTCHISON: Thank you, Chief Abraham.

Concerning the funding, I'm not aware of a request by Black River First Nation for funding to verify water levels. I'm aware that there were concerns about impacts on the Winnipeg River, and I understand that Black River and our Aboriginal relations division had been in conversation about that. But I am not aware of a request for funding due to water studies. So I guess that would be the answer for the first question.

The second question about what happens to land that erodes from the shoreline and does it make the lake higher? My understanding is that if

you remove an area from the shoreline, the lake actually increases by the amount of that area that has been eroded into the lake.

CHIEF ABRAHAM: Thank you, Mr. Chair. Just a subsequent question, when you make that statement about the funding. There are several projects that we have been working on with Manitoba Hydro, and a lot of them, there's been a request for funding. And a lot of times we get basically the same answer, no. So it's not just the one. I know we're doing the east side lake transmission line, where we requested for funding too to do a thorough study on there, and we have been basically told no. And the lake water system too, it was basically the same thing.

MR. HUTCHISON: Right. And I'm aware that you have been in discussions with our transmission group that's working on a transmission line in the area, or distribution line -- actually, I think it is the transmission line. Because of the effect that Lake Winnipeg Regulation has on water levels, it will reduce the peak water levels and the average water level of the lake, we don't really have a rationale or a basis to fund studies, because our sense is that

the impact is actually a beneficial one.

MR. KULCHYSKI: Good morning.

THE CHAIRMAN: Are you going to pursue this?

MR. KULCHYSKI: Yeah.

THE CHAIRMAN: Because that really is beyond the scope of these hearings. I think that's a very legitimate issue between Black River and Manitoba Hydro.

MR. KULCHYSKI: Not the transmission line, but funding of studies of the basin.

THE CHAIRMAN: But, again, the funding by Manitoba Hydro of studies in your community, by your community, is outside of our scope. We have no authority to rule on that or to make any commentary on that. My suggestion would be that, off the record at another time, Black River and Manitoba Hydro continue to pursue this, but it's beyond the scope of these hearings.

MR. KULCHYSKI: So you couldn't, as a condition of a licence, insist that there be some third party objective, or even First Nation controlled studies of the impacts of the water level?

THE CHAIRMAN: We could certainly

suggest something like that, but we could not -- we can't say that Manitoba Hydro or the Manitoba government should specifically fund an individual project in an individual community.

MR. KULCHYSKI: I'm sorry, I'm not talking about -- I'm saying certainly that Black River is interested in participating, particularly going forward.

THE CHAIRMAN: And that's fair enough, and I think when you make your presentation in a few weeks, that would certainly be something we would be interested in hearing.

MR. KULCHYSKI: Could we ask now, though, whether Hydro would be interested in funding --

THE CHAIRMAN: But today we are here to cross-examine Manitoba Hydro on the evidence that they presented in summary two days ago in this binder, but also all of the documentation that they have submitted, including the so-called plain language document and other supporting documents. But we're not here to pursue funding operations, not at this time. I mean, you can make those presentations in your submission whenever you are scheduled to be on the table or

at the table, but that's not today's business.

MR. KULCHYSKI: Okay.

THE CHAIRMAN: His question about the shoreline erosion was certainly a legitimate one for this today, but not the funding issue.

MR. KULCHYSKI: So then we'll turn to the other set of questions that we have. And I just want to say good morning to everybody. And we have five questions basically. And you can tell us whether they are in order or not.

Well, firstly, let me kind of follow up a little bit on that. We're just curious about how you square the circle with, you know, observation is one of the first principles of science, and people in Black River, as well as we have been hearing testimony from people all around the lake, are saying that since the Jenpeg dam was constructed, they have seen greater levels of erosion. And there are all kinds of potential reasons for why that might be. But certainly in the south basin people are seeing an increased amount of erosion. We heard evidence from an elder in Black River who said that before the 1970's, there was never, ever, ever any flooding, a fairly strong statement, and that consistently

flooding and increased flooding has happened since 1976, since the Jenpeg dam. So we're just sort of curious about why that wouldn't make you more curious to maybe look at traditional knowledge, look at other forms of study, increase the amount of scientific study here in the area. Instead, we just seem to hear that this has been for the benefit of the communities and, you know, kind of no response. So how do you square the circle with what people are observing versus what your science is telling you, I guess?

MR. HUTCHISON: I guess one of the things we tried to present in our presentation on Tuesday was that erosion has been on the lake for a long time, erosion and flooding. The issues go back, we have photos from -- it's actually rather interesting. If you look at flood events in the last hundred years of data that we have, if you go to the Manitoba archives, you look at those years where there were high waters and you'll find lots of newspaper articles and photos of the flooding and erosion issues that occurred.

So our understanding, and this isn't just scientific, this is going back, just looking at people's, you know, what was occurring at that

time, is that those issues have been there a long time. I also presented yesterday, or on Tuesday that we have seen increased inflows into Lake Winnipeg since the project started, and we don't know why that is. There could be hydroclimatic, could be land use changes, could be upstream regulation, there's a lot of factors that could be responsible. But regardless, we have seen more inflows to the lake.

At the same time, what we presented with the sort of more scientific side are the water levels on Lake Winnipeg, which show that the average level on the lake hasn't increased. In fact, when you look at our, the simulation that we presented, we can demonstrate how we have reduced the average level of the lake. And we have definitely increased flood peaks by about two feet. So we feel that this effect of LWR, if you consider that, or if you look at erosion as having, or the greatest amount of erosion occurring with a combination of high water levels and high winds, then the fact that LWR has reduced water levels should be having a beneficial effect on erosion. So that's our understanding and it's sort of based on, you know, there is some science

but there are also more anecdotal information from records about how lake behaved even before LWR was here.

MR. KULCHYSKI: Can you say when you started to observe the increased flows into the lake, like when does that start to happen? And is it increasing or is it, you know, sort of roughly a steady state since you began observing?

MR. HUTCHISON: It's gone, I guess, up and down. But overall we looked, if you looked at the time that Jenpeg was put in, in 1976 till now, and inflows to the lake have increased 6 percent on average over that time period. If you look at the last 10 years, we have been in a very wet cycle and it's been a 37 percent increase. Of course, we have also had periods where we had a drought. In 2003 I think it was the third greatest drought on record that we have got. So the water levels on Lake Winnipeg have continued to sort of go up and down.

MR. KULCHYSKI: All right. Let me move to a distinct question. I guess we have the sense generally that it's difficult for you to reduce water levels that would allow maybe for greater shoreline safety and regeneration, because

too low of a water flow would result in insufficient storage for energy production. That's our general sense of the picture. And given that there's potential for alternative electric energies on large scales on the horizon, are you at all considering the possibility of placing, or working with the province to place other priorities, shoreline retention, flood reduction, even cultural uses, before electricity generation as a priority in the future? Is that something that's within the span of what you're considering?

MR. CORMIE: Dr. Kulchyski, as I mentioned in my comments yesterday and in my opening comments, Manitoba Hydro's development plans, as we go forward into the future, have been predicated to date assuming that the licence for Lake Winnipeg would remain as it is written. But I also suggested that as we come up to a renewal licence in 2026, that Manitoba Hydro would be participating in an evaluation of all the options associated with a licence in the renewal. And I think my words were we would want to strike a modern balance, and that may still mean the same water level range on Lake Winnipeg. It could mean

a slightly different water level range. But to date, our plans have been assuming that it was status quo, but if public policy, and it's in the public interest to make those changes in the future, we would participate in those discussions, recognizing that there are other values that have an influence on water policy and water development.

MR. KULCHYSKI: And do you have, just a supplement to that, is there a direct kind of economic correlation to the water level? Like can you say, if you lose a foot of the lake, it's costing you, you know, a hundred million dollars, or some fairly close economic value?

MR. CORMIE: We can do calculations to find out the utility cost, cost to the customers of Manitoba Hydro, if the limits were changed.

MR. KULCHYSKI: But you don't have that yet?

MR. CORMIE: I think that's in appendix 11, where we have calculated what would it cost Manitoba Hydro ratepayers if the licence limit of 715 was reduced to 714? And that involves the lost production value of electricity, the cost of changing our development sequence to

still maintain the same level of reliability. But, you know, that's only part of the story.

MR. KULCHYSKI: Sure.

MR. CORMIE: And you know, to make any change would have to be studied in a comprehensive manner, looking at all the aspects, including the aspect of the impacts to the downstream communities and the additional adverse impacts that are associated with that. We haven't included in that calculation in that appendix the cost of having to renegotiate all those settlement agreements that exist today, and the potential for additional mitigation and programming associated with that change.

MR. KULCHYSKI: Thanks. So I'll move on again.

There are about 90 provincial dams, as we understand it, in operation around the province. These dams are mostly for the purposes of irrigation and are wholly separate from the hydroelectric system operated by Manitoba Hydro. However, many of them are in states of disrepair that the province does not wish to refurbish or upkeep. Many will be decommissioned and torn down resulting in even more water flow into Lake

Winnipeg. Is Manitoba Hydro in conversation with the province, engineers and planners, to conduct joint studies of the ultimate implications of this for Lake Winnipeg Regulation?

MR. CORMIE: No, Manitoba Hydro has not been in a joint water management study process with the province on their projects.

MR. KULCHYSKI: Have you done any work to think about how that might change the flow into the lake and how that might impact their management?

MR. CORMIE: Well, I think generally the more storage that's effective in the watershed makes it easier to manage Lake Winnipeg. You know, the water doesn't rush into the lake as quickly and doesn't have to be past downstream as quickly if there is upstream storage. And you know, I think that's the point that the IISD makes in their argument that there should be more upstream storage.

Conflicting with that, though, is the desire of people to get water off their land. And you can see what's happening on Lake Manitoba, as the people around Lake Manitoba are saying, hey, we're having flood issues, we need to take the

water out of Lake Manitoba. Where does it go? It goes into Lake Winnipeg and then it goes downstream.

So the history of storage development has not been to increase storage and its effectiveness in the province, it's been to reduce the effectiveness of storage, create more drainage to pass the flood downstream faster. And that's causing problems for the people downstream, including those on Lake Winnipeg and including the people downstream on the Nelson River.

So there has to be some broad policy discussions and land use regulations and it has to be done at a provincial level. And Manitoba Hydro would participate in those discussions, but clearly that's a Provincial Government area of responsibility and we will take our lead from them.

MR. KULCHYSKI: So moving to another area -- thanks for that. You have stated that Lake Winnipeg Regulation doesn't affect the water quality on Lake Winnipeg. However, I guess we wonder whether you have the same position on all the ancillary operations of Manitoba Hydro which do feed sediment filled water into the lake, which

would normally be naturally filtered before entering the lake. Do you believe that Hydro's ancillary systems play a role in sort of creating some of the water quality problems on Lake Winnipeg?

MR. CORMIE: Could you give me an example?

MR. KULCHYSKI: For example, on the Winnipeg River, the dams on the Winnipeg River are, you know, creating erosion and bringing sediment into the river in a way that naturally they wouldn't have. And that sediment is going into the lake.

MR. CORMIE: The Winnipeg River flows into the province at the border with Ontario. The vast majority of that water is coming from Ontario, very little of it rises in Manitoba. The mode of operation of our dams in Manitoba is to essentially hold the water levels constant upstream of the dams. And so any fluctuations that you are seeing on the flow of the Winnipeg River are occurring upstream, either because of regulation, or they are occurring naturally. And those projects on the Winnipeg River have been in place for, I think McArthur was the last one that

came in, in 1956, somewhere around there. So they have been there a long time, very stable facilities, and I don't believe that we have -- our projects are causing erosion in their operation. If you are seeing a sediment coming into the river, it's probably because of the erosion that's occurring downstream at Pine Falls, that's naturally occurring along the banks of Winnipeg, and on the shores of Lake Winnipeg. But they are not, I don't believe that's a result of our operations.

MR. KULCHYSKI: All right.

MR. HUTCHISON: Sorry, if I could just add something, Dr. Kulchyski? I don't think we said that Lake Winnipeg Regulation doesn't affect water quality. I'm saying there are so many other factors, and that we're supporting independent research to confirm the influence of LWR on water quality. So far they haven't suggested that it's -- if there is an effect, or so far they have suggested that if there is an effect, it would be minimum at best.

MR. KULCHYSKI: Can I ask you just a bit about what the protocols are for the independent research you support? Because through

these different processes, I have had a kind of the sense that -- I mean, let me put it crudely -- that you can buy a scientist who will say what you want. So I'm curious about how you keep them at arm's length from you in terms of producing the knowledge that they produce, just as a follow-up to that.

MR. SWANSON: Maybe I can answer part of that. Part of Hydro's contribution to the science and research on Lake Winnipeg is to the Lake Winnipeg Research Consortium. And it's a significant program. It includes academics and researchers from both Federal and Provincial Government agencies and universities. And Manitoba Hydro's role is to contribute to the platform, essentially, the funding and the operation of the boat, the Namao. And the research is determined by the scientists, it's determined, the research consortium has an annual workshop to discuss the state of the science. They have produced reports on that. And it's entirely the product of the academic research regulatory community.

Manitoba Hydro's role, like I said, is to support the platform that the research is done

on. We specifically don't engage in the development of that agenda.

MR. KULCHYSKI: So you haven't played a role ever in encouraging certain researchers to be used, or discouraging certain researchers, or any of those kinds of interferences?

MR. SWANSON: Not to my knowledge, not since I have been involved. And I sit on the board for the research consortium.

MR. KULCHYSKI: Thanks. And then lastly -- I know you're eager.

THE CHAIRMAN: You're doing well.

MR. KULCHYSKI: I'm curious about, you know, since the early 1970s, when you have had quite a fractious relationship with First Nations communities, and we have seen the constitutional recognition and affirmation of Aboriginal and Treaty rights, and Manitoba Hydro itself has at least arguably changed the nature of its relationship with First Nations and has been trying to improve it, and there's partnership agreements. So I'm curious about whether you would endorse, even encourage either a condition or within the licence itself an acknowledgment that the licence should operate within a framework

that respects and affirms Aboriginal and Treaty rights. I'm glad if I have stumped you a little bit.

MR. HUTCHISON: That was obvious, was it?

You are right. Insofar as our early developments did leave quite a legacy of issues that Manitoba Hydro is now working with, and we have done a number of initiatives like you mentioned, agreements, equity partnerships. Our corporate strategic plan talks about goals to strengthen working relationships with Aboriginal peoples, a number of other things. I don't think that we think it would be appropriate, though, to have something in our Water Power Act licence saying how we affirm Aboriginal and Treaty rights. I think there would be other areas where that could be addressed more appropriately.

MR. CORMIE: Dr. Kulchyski, you know, this issue under section 35 of the Constitution Act is an issue between governments and the First Nations. And the issue of resource allocation and licensing is a decision that government makes. And the issue of a renewal licence, and just the process of applying for a final licence has

triggered those section 35 consultations with the Aboriginal communities. And Manitoba Hydro is supportive of that, but that is a process that government is leading and it's their responsibility to have those discussions with the First Nations, as required under the Constitution. Manitoba Hydro will follow the direction of government when it comes to the outcome of that.

MR. KULCHYSKI: Let me ask one follow-up. Specific to Black River, you know, from the perspective of Black River they look and they see agreements and some working arrangements with communities that are downstream of the Jenpeg dam. And they have actually tried to be engaged with Manitoba Hydro, I would say generally in a fairly constructive way for a long period of time and are largely, you know, not getting funding to support the kind of studies they think are necessary, not really getting much of a sense that Hydro is interested in them. What they are being told is, the regulation of the lake is for your benefit and that's all there is to it.

Now, a little more than 10 years from now you'll be going into a permanent licence exercise. The history you build with the

community now is going to reflect how the community deals with you when it comes to that longer term permanent licence. Is there any thought that an earlier engagement with communities like Black River, listening more closely to what their traditional knowledge is telling them, and maybe developing a growing engagement with them might be beneficial to you in the future?

MR. CORMIE: Yes. And I believe Mr. Hutchison indicated that over the past few years we have reached out to the community to establish a relationship. And we're looking forward to continuing that relationship. And I, you know, I hear Chief Abraham talk about the shoreline erosion that's occurring on his lands. And this is the same, very similar story that we hear from many people around the lake. We're clearly aware of the issues of erosion. And we are also aware that history tells us that the erosion has been going back, we actually have some surveys from 1876 on the west side of the lake, just north of Gimli, where hundreds of feet of shoreline have eroded. And this is all occurring prior to Manitoba Hydro's activities with regard

to Lake Winnipeg. You know, so our desire is to engage, to understand, to listen, and to the extent that we believe our operations are having an adverse effect, like they have downstream, we engage in studies to determine what those effects are and what things can be done, what compensation needs to be paid.

As Mr. Hutchison said, though, Lake Winnipeg floods now are passed through the lake at lower levels than they would otherwise be as a result of the project. And it's our belief that this is a benefit to everyone, including the First Nations around the lake, and that that's not an adverse impact, that's a benefit, and it's a benefit that everybody enjoys.

If there were other issues where our operations were having an impact that we didn't understand, and it was clear through our discussions with you, and you relate to us that, you know, something else is an issue, we would be completely interested in understanding that and seeing if that was something that we were creating, and then working with you to try and resolve it.

But the problems with erosion that

Black River is seeing on the lake are essentially the same problems that everyone is experiencing. And hundreds and hundreds of feet of shoreline have eroded, and we sympathize with all people who live around the lake and who are suffering from that, but it's not something that I think Manitoba Hydro can take responsibility for.

CHIEF ABRAHAM: Just one more, maybe a couple more questions. In regard to the planning of the Jenpeg development, how long was the planning process on the table for Manitoba Hydro?

MR. CORMIE: I think we show in our documentation of the history that the project was developed over a relatively short period of time, between about 1966, when the agreement with Canada was signed to regulate Lake Winnipeg and, you know, construction started in 1972. So the period of study was relatively short compared to what we would undertake today given, you know, the modern environment in which we are now living.

CHIEF ABRAHAM: The reason I ask this question is back up until the late '50s, the community of Black River used to be out in the mouth of the river, and after that it was moved into the interior of the two rivers, O'Hanly River

and Black River. And prior to that, like I said, we lived out at the mouth of the lake and we never experienced no flooding in those times until after probably 1976. We used to, when you talk about the history of the lake, there used to be a time when you could go by boat, when you were about 100 to 200 feet out on the lake, you could see the bottom of the lake, the ripples of the sand at the bottom. And some people would think it was pretty shallow until they jumped in, it was about 10, 15 feet down. So after that, '76, you can't even go a foot into the lake and not see the bottom. So something has happened in between the time of the dam that went in to present.

MR. CORMIE: Yes, you know, there are many people around the lake who have noticed the changes that are occurring to the lake, but there are many other things that are occurring around the lake that are causing changes as well. The question is whether the regulation project is part of that change.

I'm not sure if you have been to Gimli, but First Street is on the shore of Lake Winnipeg now. First Street used to be the first street back from where the water was. So towns

like Gimli have lost significant waterfront over the past hundred years as a result of erosion. So it's not just your community that is being affected, it's quite a common experience around the lake where expanding -- the lake has expanded because of erosion, and causing communities to have to reset back. It is the nature of the south shore of Lake Winnipeg that it is an eroding shoreline, and people are adjusting in response to that.

MR. KULCHYSKI: So just as a follow-up, we recognize that there is a lot of different factors changing the lake, but can you say definitively that Jenpeg isn't one of them that's contributed to some of these problems?

MR. HUTCHISON: I think in my presentation I kind of went through each of these factors. And what the consensus appears to be amongst the scientists that are looking at it is that if Lake Winnipeg Regulation is having an effect, it's a minor one. So the big thing is the upstream nutrient inputs into the lake, is the biggest impact, and that's primarily from the Red River. And that's what's causing this water quality or water clarity issues and algal blooms

and that sort of thing.

CHIEF ABRAHAM: I just want to make one final comment, and that's the part that we don't have the opportunity to refute what you're saying. You say you are a scientist. Basically, it's scientist that you pay for. We don't have the opportunity to refute that with people that we can hire to argue that. And so it's coming your side only. Miigwech.

MR. KULCHYSKI: Thanks for your answers.

THE CHAIRMAN: Thank you. Dr. Kulchyski, I'd just like to correct an incorrect impression that you might have. We're never anxious to see you leave the stand. You always bring very interesting and very pertinent issues to our proceedings. So thank you, Chief Abraham, Dr. Kulchyski and Mr. Duplassie.

I believe next we have the Consumers Association. Just state your name for the record, Mr. Williams, and then you may proceed.

MR. WILLIAMS: Yes. Thank you and good morning. My name is Byron Williams from the Public Interest Law Centre and I represent the Consumers Association, Manitoba branch. And I

should introduce Ms. Barbara Nielsen, who is a board member of CAC who is at the CAC table. To her right you'll find Ms. Joelle Pastora Sala, my colleague. And probably in the back row you might see a couple of interns that our centre has been blessed with this year. J.P. Deniset who is from Robson Hall, and also Mark Regehr from the Canadian Mennonite University. So we welcome them and appreciate their assistance.

And Mr. Chair and to the panel, I am struggling with a bit of a cold, so if I show you the discourtesy of putting a throat lozenge in my throat, it's not meant as any disrespect to the deliberations.

Good morning, Mr. Gawne. To your credit, sir, you are an engineer and not a lawyer. Would that be correct, sir?

MR. GAWNE: I am an engineer. I don't know if it's to my credit.

MR. WILLIAMS: We could take a vote, but I'm pretty confident what the results would be.

It is the case, though, sir, that in your role as department manager for energy operations planning, you have familiarity with the

interim licence operating parameters as they may affect operations and planning?

MR. GAWNE: That's correct.

MR. WILLIAMS: So if a bit later on in our discussions, sir, I make reference to the operating parameters, you will understand that I'm not in any way seeking a legal opinion, but I'm seeking to understand their implications for planning and operations. Is that understood?

MR. GAWNE: Yes.

MR. WILLIAMS: Now, sir, you spoke Tuesday about the decision models, the suite of computer models that Hydro refers to as the decision support systems. Does that ring a bell, sir?

MR. GAWNE: Yes, it does.

MR. WILLIAMS: And that system is in place to assist in making operational decisions, correct?

MR. GAWNE: That's correct.

MR. WILLIAMS: And when you spoke of the decision support system, would it be correct to suggest that one element of that system is the HERMES decision support system for energy operations planning?

MR. GAWNE: Yes, that's correct.

MR. WILLIAMS: When you speak about decision support systems, are you primarily referring to HERMES, sir?

MR. GAWNE: The HERMES decision support system are a suite of tools used in operations planning for water management on Lake Winnipeg Regulation. HERMES would be the primary tool for that, however, we do have other operations planning decision support tools, more appropriate for different time horizons than what's appropriate for Lake Winnipeg Regulation.

MR. WILLIAMS: In terms of LWR and operations, the primary decision support system is HERMES?

MR. GAWNE: Yes, that's correct.

MR. WILLIAMS: And without getting into any detail, the other ones for different planning horizons are tools such as SPLASH and PRISM, would that be fair?

MR. GAWNE: The SPLASH tool is not necessarily an operations tool, but a resource planning tool for system expansion studies. The PRISM tool is similarly a longer term screening tool to do studies similar to SPLASH.

MR. WILLIAMS: Thank you for that. In your testimony on Tuesday, sir, you also indicated that Hydro maintains a general awareness of industry practice of other North American hydro utilities such as Bonneville Power, B.C. Hydro and Hydro Quebec. Is that correct, sir?

MR. GAWNE: That's correct.

MR. WILLIAMS: And without asking you to elaborate, would that general awareness also extend to the regulatory regimes and licensing restrictions under which those utilities operate?

MR. GAWNE: I think in our relationship with counterparts similar to myself, with those entities such as BPA and Hydro Quebec and others, you know, it's through our discussions we are aware, but the discussions generally don't centre on the specific regulatory regimes that they are operating in.

MR. WILLIAMS: So, again, if I come to a couple of questions on that subject later and you feel uncomfortable answering, you'll just let me know. Is that understood, sir?

MR. GAWNE: Yes.

MR. WILLIAMS: As a general element of your work or in preparing for this hearing,

Mr. Gawne, would you have familiarized yourself with the determinations of the International Joint Commission as it related to the 2014 plan for Lake Ontario and the St. Lawrence River?

MR. GAWNE: I have not been able to review that material.

MR. WILLIAMS: And finally on this subject, as a general element of your preparation for the hearing or your general work, sir, would you have generally familiarized yourself with the licensing considerations and licensing terms required to be considered by the U.S. Federal Energy Regulatory Commission?

MR. GAWNE: Perhaps you can clarify, is this in relation to achieving final licence or, pardon me, achieving licences for new projects or relicensing of better projects?

MR. WILLIAMS: I should have been more precise and I apologize. The question was focused in terms of new and the licensing of new projects, hydroelectric projects?

MR. GAWNE: I haven't specifically reviewed for procedures for licensing.

MR. WILLIAMS: Thank you. Mr. Gawne, I want to see if we're on the same page in terms

of the definition. If I defined environmental flow to mean the quantity, timing and quality of water flows required to sustain freshwater ecosystems, and the human livelihoods and well-being that depend on those ecosystems, would that be a definition you are comfortable with, sir? I could repeat it if you'd like.

MR. GAWNE: It was a bit of a mouthful, but maybe you could repeat that, please?

MR. WILLIAMS: If I defined environmental flow to mean the quantity, timing and quality of water flows required to sustain freshwater ecosystems and the human livelihoods and well-being that depend on these ecosystems, is that a definition you are comfortable with, sir?

MR. GAWNE: That sounds like a reasonable definition.

MR. WILLIAMS: And indeed it sounds uncannily like the 2007 Brisbane Declaration; does it not, sir?

MR. SWANSON: We are aware generally of the concepts of ecological flow and understand some of that.

MR. WILLIAMS: Thank you. And certainly if I didn't say this before, a lot of my

questions will be focused on Mr. Gawne and Mr. Cormie, but if there's other members from the Hydro panel, they are more than welcome to pop in.

Mr. Gawne, in your testimony on Tuesday -- and I should have noted that Mr. Penner has been kind enough to offer to assist me with my powerpoint communication, given my technical ineptitude. But if perhaps we can turn to page 38 of Hydro's presentation of that day -- and thanks to Mr. Penner.

Mr. Gawne, these are your operational planning objectives which you have memorized, correct, sir?

MR. GAWNE: I think I have read this enough that I remember it, yeah.

MR. WILLIAMS: And I want to focus first a bit word-by-word and focusing on the term "reliable." My understanding is that in terms of the corporation's planning criteria, there is both a capacity requirement and an energy requirement for reliability. Would that be fair, sir?

MR. GAWNE: Yes, that's correct.

MR. WILLIAMS: And I've heard Mr. Cormie say this before but I'll ask you to confirm that the corporation generally describes

itself as being energy constrained with water inflows being a major determinant of power production capacity. Would that be accurate, sir?

MR. GAWNE: I think that's an accurate statement from a longer term planning perspective, yes.

MR. WILLIAMS: And without digging into great detail, but focusing on the energy requirement in terms of reliability, that requires Manitoba Hydro to ensure that it has adequate resources, energy resources, to firm energy demand in the event of the lowest recorded coincident water supply condition. Would that be generally accurate, sir?

MR. GAWNE: Generally that's correct, yeah.

MR. WILLIAMS: I want to focus still on this page on the first line in terms of the reliable and economic operations. And Mr. Gawne, one circumstance in which there might be a trade-off between considerations of optimizing, or protecting reliability and optimizing economics, would ensue when the issue became whether to draw down the reservoir in order to take advantage of a short-term opportunity in the export market, or to

maintain the reservoir at a higher level out of a concern with meeting future demand. Would that be fair?

MR. GAWNE: I wouldn't necessarily agree with that. If we are looking at a condition where drawing down the reservoir would compromise the firmness of the system in terms of energy availability, we would not be doing that, to exercise the use of that water for an opportunity in the market or something of that nature.

MR. WILLIAMS: That's exactly my point, though, sir. That's an example of where the corporation, in doing its analysis, has to consider the trade-offs between optimizing economic result or protecting the reliability objective. Would that be fair?

MR. GAWNE: That's fair, yes. Reliability is over and above economics.

MR. WILLIAMS: Okay. And you have adverted to this in your answer to responses before, but that trade-off issue becomes particularly acute in years where precipitation is lower than average, or years where there is some concern with the risk of a drought. Would that be fair?

MR. GAWNE: I think that's a fair statement. For example, in the 2003/04 drought, our most recent major drought on the system, we were incurring significant costs.

Excuse me, I might have to ask for one of your lozenges.

We were incurring great cost to protect storage so that we could weather a continued drought. And in the end, it costs the corporation a lot of money, but the reliability of the system was maintained throughout that operation.

MR. WILLIAMS: Thank you for that. And just in terms of the lozenges, I'm down to one but I am prepared to share.

MR. GAWNE: Or I could just not answer.

MR. WILLIAMS: So Mr. Gawne, in terms of the operations planning objective, one major source of uncertainty is the inflow of waters into Lake Winnipeg. Would that be fair?

MR. GAWNE: That's fair.

MR. WILLIAMS: And indeed to go a bit farther, reservoir inflows drive the overall amount of water available and represent the

dominant source of uncertainty in operations planning?

MR. GAWNE: In terms of energy supply, reservoir, or inflows to the system is the largest uncertainty, yes.

MR. WILLIAMS: And as we look out to the medium and longer term horizon, you would agree that there is higher uncertainty than historically related to reservoir inflows as a result of both natural climate variability and human induced climate change. Would you agree with that statement, sir?

MR. GAWNE: Certainly effects such as climate change and anthropogenic activity add uncertainty to longer term water supply conditions. But in the operating horizon, which is kind of the domain that energy operations planning is focused on, the larger uncertainty is that variability, that the climate provides inflow. So year to year variability is the dominant uncertainty per se in terms of operations.

MR. WILLIAMS: Okay. I thank you for that. Staying still on the objective, and I want to focus on the word "economic" for a moment. And

would one example of an economic call involve the decision on whether to import power from what might be a relatively high cost external source of power in off peak hours, in order to reserve domestic power for the purposes of selling into the U.S. market at higher demand, higher price peak times. Would that be the type of economic consideration you might look at, sir?

MR. GAWNE: Yes.

MR. WILLIAMS: And in order to make that type of economic calculation, the corporation, as part of its ordinary planning practice, would have to make reference both to the domestic cost of producing power and its expectations of prices that it might obtain for power in the market-place. Would that be accurate, sir?

MR. GAWNE: That would be a part of the economic evaluation, if I understood your characterization. We certainly, if we are choosing to import electricity, the intent is for that to be economic, again, if we're in that economic realm of operations and we're not governed by reliability.

MR. WILLIAMS: And I want to stick

with economic for a moment more. In terms of that economic calculation, are the cost of domestic power production and the price obtained in the market-place the primary elements of that economic calculation, sir?

MR. GAWNE: Those are some of the considerations certainly. In a Hydro operation, and when you have storage, the inherent trade-off that you're making is a function of the future conditions in the market and your future cost to operate the system. So that trade-off, that economic trade-off does have to consider that.

MR. WILLIAMS: And focusing on the calculation, just on the word economic, is the future condition in the market and the future cost of production, are those the primary elements of that calculation, sir?

MR. GAWNE: Well, I think if we go back to that supply and demand balance that I showed in my presentation on Tuesday, the decision whether to import or export is a function of how much future energy you anticipate having. So it's not just a matter of the market prices and our cost, because our costs are driven by, for instance, how much water supply we have in the

system, right?

MR. WILLIAMS: So those would be the big three considerations in that calculation on the first line?

MR. GAWNE: Can you review those three before I say yes?

MR. WILLIAMS: Well, I was hoping you'd just agree with me, sir. But focusing on that first line, the reliable economic operation of power, the primary considerations involve expectations of future water supply, expectations of future market price conditions, and expectations of the cost of production of power. Would that be fair?

MR. GAWNE: The operating horizon or the operating time frame has kind of various sub time frames within that. So if we're talking about a decision today versus tomorrow, well, it may be a bigger factor tomorrow versus water supply conditions because it's the winter and we have a good sense of what our flows are. Are we going to have a generation outage tomorrow? Is the temperature forecast going to be off tomorrow and the load is going to be higher or lower? So it kind of does depend on how far out on the

operating highs when you are looking at it as to what's the main driver in the decision. For water management on Lake Winnipeg, which is what we're talking about here, Lake Winnipeg Regulation, future water supply is clearly a major driver. Generally, the decision as to when to release water, when we're now into that economic realm of to release water from Lake Winnipeg Regulation or not, the decision whether or not to release that water is generally based on typical load, seasonal load conditions, and that's the major driver. And you know, the export side of water coming out of Lake Winnipeg is largely a product of how much water is flowing in the river at the time. So, you know, the salvage of the water that shows up, because we have to remember that when we release water from Lake Winnipeg, it's weeks away from our major generation on the Nelson River. So it's not a matter of tomorrow's market price is going to be very high, let's release water today. Oh no, the market price is lower, let's back off. These decisions are weeks away in terms of the effect of that water arriving at our major generation. So those decisions have to be made in advance and they are generally made on a seasonal basis.

MR. WILLIAMS: And I don't want to belabour this much more. I have your answer on kind of the day-to-day operations. Let's say it's the spring, May, June of 2015, and Mr. Cormie is telling you that it looks like it's going to be hot in Minnesota, and air conditioning, we might be able to get 18 cents a kilowatt hour kind of, and we might want to take a short-term contract a few months out, that's when we see the economic considerations assuming a higher prominence, always weighed against that dominant reliability concern. Are you confident you can draw down the reservoirs to take advantage of that opportunity?

MR. CORMIE: I think, Mr. Williams, I can help out here. We have functionally separated the operation of the reservoirs from the activities of Manitoba Hydro's power traders and merchants in the market. So we don't let the merchants make the decisions with regard to reliability. That is Mr. Gawne's primary responsibility. And he operates the reservoir system independent of the power traders. And as it indicates on the slide, reliability is his chief and major focus. We meet the reliability needs of the province first. We meet our licence

requirements. We meet all those other responsibilities as they are laid out. And then around that, we operate economically, given the constraints that are imposed, reliability is a constraint. And we don't let Mr. Gawne get confused between what's happening in Minnesota and his responsibility to Manitobans.

MR. WILLIAMS: Okay, thank you. I'll come back to this, but I want to back away from the operations planning objective for a moment. And this can go to anyone on the hydro panel. Can we agree that aquatic ecosystems provide numerous functions of value to society?

MR. SWANSON: Yes.

MR. WILLIAMS: I thought you'd be all over that one, Mr. Swanson.

Among these values would be elements such as natural water treatment, would that be fair, filtration and purification?

MR. SWANSON: Sure, on a general level.

MR. WILLIAMS: Another one would be moderation of floods and drought?

MR. SWANSON: Yes.

MR. WILLIAMS: Another one would be

habitats that support biodiversity, agreed?

MR. SWANSON: Yes.

MR. WILLIAMS: And another one might be healthy populations of important native species, agreed?

MR. SWANSON: Sure.

MR. WILLIAMS: Going back to, first of all to Mr. Gawne and Mr. Cormie's side of the table, are you familiar with the work of Troy -- excuse me of Austin and Bagstad in terms of estimating ecosystem services in Southern Ontario?

MR. CORMIE: I'm not familiar with that.

MR. GAWNE: I'm not directly familiar with that. I believe I read some references to it in the IISD report.

MR. WILLIAMS: Mr. Swanson, you look a little more familiar.

MR. SWANSON: Not specifically with that report, but the concept again of ecological goods and services is not new to us.

MR. WILLIAMS: Okay.

MR. CORMIE: Mr. Williams, I'm thinking that these are externalities in how you value those things. And traditionally our utility

economics have not included those. Only once in my memory have we included externalities in our operational planning, and that had to do with dispatching coal generation at Brandon, and we included a premium associated with the carbon that was associated with that. But to the extent that there are other external values, generally we don't make those value judgments. Those become constraints. We rely on people like Mr. Swanson to say the water needs to be maintained in a safe level, and we ask him, well, what is that condition? What do we have to do? And we're not trading that off in order to achieve more economic operation of the utility.

Licence constraints, environmental constraints are exactly that, they are not -- they constrain our operations. And Mr. Gawne includes those as rules and they can't be broken. And to the extent that those rules allow us some flexibility in operating the utility, then our models find the most economic way to operate given that that rule set exists.

MR. WILLIAMS: Mr. Cormie, I thank you for that because that is jumping into the thrust of this line of questioning. And just to kind of

confirm that, when we look again to that first line, and I understand your points about constraints, but when we look to that first line, in planning for the reliability and economic operation of the system, I'm correct in suggesting that there is no monetary valuation attributed to the health of the Nelson River ecosystem. Would that be fair?

MR. CORMIE: There is no value function put into the modeling that says with certain river flows the system becomes healthier. We assume that it is healthy, given the rule set that we have. And to the extent that there is an issue, Manitoba Hydro will either mitigate it, fix it, or we will change our operations so that our operations also not causing that unhealthy state.

MR. WILLIAMS: Thank you for that.

MR. GAWNE: Perhaps I could just add something? Sorry, Mr. Williams.

MR. WILLIAMS: Yeah, always.

MR. GAWNE: And it gets to the latter part of that statement. Although we may not have specific economic values for ecosystems within our decision support modeling, that's not to say that those considerations are not made in the

operations. I think we referred to a few examples of that previously where, you know, if possible, the flow changes that we make, for instance, at Jenpeg are less aggressive, let's say, than the licence allows in terms of how quickly flows are transitioned at Jenpeg. And there's other examples like that. So the modeling, as I have said on Tuesday, is a tool, it's an advisory tool to inform our decision makers and the people that use those models. That's not to say that we are hard wired to those models.

MR. WILLIAMS: Yes, and I'm going to come back to your point, your thoughtful response in just a minute, Mr. Gawne. But just to finish my thought, again, you will confirm that in planning for reliable and economic operations, no value function is attributed to the health of the Netley-Libau marsh in the operation support decisions; is that correct?

MR. GAWNE: That's correct.

MR. WILLIAMS: So Mr. Gawne, going back to your answer, again, to two answers before, when you are looking at those trade-offs between reliability, economics and the environment, you are looking at them with two different currencies,

I'll suggest to you. There's an economic currency attributed to the net revenue for Hydro, and there is more of a value judgment attributed to the environmental. Would that be fair, sir?

MR. GAWNE: I'd say there is more than two currencies. Certainly in terms of the reliability, we're talking about megawatts and megawatt hours or gigawatt hours, energy quantity, not dollars. People wanted their lights to turn on when they go to use their electricity, and it's not about -- we don't have an economic choice to not provide that electricity. So there's an energy quantity in terms of currency, there is, yes, a dollar value when it comes into economics and we're trying to operate the system economically. In terms of the environmental and stakeholder impacts, we don't have a specific currency. And as you say, it's a consideration in our operations, and we don't have as yet a specific, you know, we haven't gone online to find the exchange rate calculator per se for megawatt hours to dollars to ecosystem values.

MR. WILLIAMS: Okay, thank you. And I'm not now referring to Manitoba Hydro's values or deliberations, but focusing you on the

literature related to reservoir optimization. Are you familiar with suggestions in the literature on reservoir optimization that when economic and power values are contrasted with ecological values, the ecological value benefits tend to be devalued, simply because they are difficult in quantifying using a single currency?

MR. SWANSON: Maybe I could offer a few comments on that? Your comments about different currency or lack of currency, in my mind, are pretty pertinent. It's an issue that's being struggled with, with resource management very broadly, not specific, or not just specific to reservoir management. I wouldn't use the word "devalued," I would look more to the history of environmental regulatory framework and the environmental understanding. It's an area of growing understanding, and the ability to even consider the concept of ecological goods and services, and the way it's been implemented, and it's been implemented differently I understand in different jurisdictions, that part of coming to a standardization for that, it's not at a point like the International Accounting Standards, for example.

So it is an area of growth in terms of understanding and research. And it's not been devalued, it's probably not been precisely valued, the uncertainties around it are quite high, and with the best information at the time, as a former regulator, that's my understanding of the context. And we talked about the history of environmental, the environmental regulatory environment and how that's changed over time. The licence considerations do include, they do reflect environmental values. They may not be quantified in the same fashion as sort of the economic parameters, so...

MR. WILLIAMS: And Mr. Swanson, just to follow up on that thought, within the modern resource planning environment, you'll agree with me that there is an interest in moving towards well-accepted and internally consistent principles for looking at ecological values. Would that be fair?

MR. SWANSON: I would say that the concept of ecological values is supported broadly in terms of resource management. I'm not sure about well-accepted standards. The concept is well-accepted, the standards themselves are --

there are still multiple perspectives and different ways that they had been used where they have been used, in terms of goods and services analysis, for example.

MR. WILLIAMS: Thank you. To finish the point, though, there is a desire to move towards well-accepted and internally consistent standards, because otherwise the valuation methods for ecological values tend to be quite subjective. Agreed?

MR. SWANSON: I think we're all looking for an easier formula. The reality is that the science is inherently more uncertain, given environmental variability, the many interactions between different components in the ecosystem. So while I would agree that there's a desire to move toward standards, there's still much to be done in that area. So without wanting to leave you with the impression that I think that it's just around the corner, I think that's where we're working towards, but I don't think it's a short-term objective necessarily.

MR. WILLIAMS: And the reason you're working towards that objective, though, sir, is because generally in the literature there's a

concern that in the absence of those consistent principles, those value judgments are subjective and open to the bias of individual decision makers. Agreed?

MR. SWANSON: They are subjective at some level. I would say that it would depend on the process as to how and what you mean by bias. I'm not quite sure.

MR. WILLIAMS: Fair enough.

Mr. Gawne, I think we're back to you now, and I'll ask my very supportive colleague, Mr. Penner, to turn to I believe it's page 41 of Hydro's presentation from Tuesday. Thank you.

Mr. Gawne, we have talked both today and you did on Tuesday about Hydro using a suite of computer models to inform its decisions. Agreed?

MR. GAWNE: Agreed.

MR. WILLIAMS: And the primary one for your job is HERMES, correct?

MR. GAWNE: That's the primary model in our department but I'm not the one at the controls.

MR. WILLIAMS: And just as one example of what you might do with your computer models,

you might look at the statistical relationship between data describing current conditions, such as the latest snow pack, precipitation, temperature, to determine the likely near-term hydrological system operations. Would that be fair?

MR. GAWNE: Partially, we do look at snow pack and precipitation and current flows in the system. We're not looking at temperature directly and projecting flows based on current temperatures, no.

MR. WILLIAMS: And your decision support systems have models for forecasting important information such as inflows. That's one element of them?

MR. GAWNE: That's correct. And as I mentioned, I believe yesterday, we do use forecasts from other agencies. So some of that is essentially like a direct input, we're not necessarily generating those forecasts, but we are the recipient of that information.

MR. WILLIAMS: And you'll look at forecasting ice conditions, agreed?

MR. GAWNE: Yes, ice conditions affect our operations five or six months of the year, so

we have to consider that.

MR. WILLIAMS: And also you'll be looking at a forecast for, for example, market prices and load. Agreed?

MR. GAWNE: Certainly for load, given that we are required to serve electrical load, that's an important input, so we do have forecasts for that. We obtain forecasts for load from a different group within the company. But that is input into our model, and market prices as well to help us with the economic side of the operation.

MR. WILLIAMS: And then there's a flow simulator to look at the impact downstream on the rivers and lakes affected. Would that be fair?

MR. GAWNE: Yeah, and other purposes, but, yes, we have a flow simulator.

MR. WILLIAMS: Now, Mr. Gawne, it was a lengthy definition. Do you recall the definition we used to describe ecological flows that we used? I'm not asking you to repeat it but --

MR. GAWNE: I recall, yes.

MR. WILLIAMS: Okay. Again, not looking at the specifics of Manitoba Hydro's modeling exercise, but would it be fair to say

that Hydro is aware of reservoir optimization modeling in other jurisdictions that is undertaken, for example, with an objective of timing flow releases to meet water quality constraints. Are you familiar with that?

MR. GAWNE: Yes, there are utilities and entities in other jurisdictions with modeling that does consider those factors.

MR. WILLIAMS: Again, there are utilities in other jurisdictions that would look at reservoir optimization modeling with an objective to time flow releases to improve the health of fish populations. You are aware of that, sir?

MR. GAWNE: Yes, I am. I believe, for example, Bonneville Power Authority and Columbia River operation, objectives were set based on what I understand to be a thorough review and consideration of the various interests along that waterway, including Hydro, and fish, and matters such as this. So by setting objectives, entities like BPA is able to include those constraints or factors that drive the decision support systems into their modeling.

MR. WILLIAMS: And when you use the

acronym BPA, you're referring to the Bonneville Power Authority?

MR. GAWNE: I'm referring to Bonneville Power Authority, yes.

MR. WILLIAMS: Okay. This can go to the entire panel. Are you aware whether in the scientific literature there is a suggestion that the uncertainty associated with ecological responses to flow could be as great as the uncertainty associated with reservoir inflows and the uncertainty associated with hydro power markets?

MR. SWANSON: I'm not aware of any studies that specifically speak to uncertainties of it. As I previously stated, we're quite aware of the uncertainties in terms of estimating ecological responses.

MR. WILLIAMS: Okay. And it would be fair to say that ecological outcomes related to flow releases are another important source of uncertainty related to Hydro operations?

MR. SWANSON: I would say the outcomes, the ecological outcomes of many things are uncertain, including Hydro operations.

MR. WILLIAMS: Okay.

MR. CORMIE: Mr. Williams, we have a history of the hydrology of Lake Winnipeg that goes back a hundred years. And for the vast majority of that time, the Nelson River was unregulated, and water flows were going up and down based upon the weather. So, you know, the environment on the Nelson River historically was exposed to the hydrologic uncertainty. And if you look at the response of levels of Lake Winnipeg, they are very similar to what has occurred historically, and the flows down the Nelson River are very similar to what has occurred historically. You know, we haven't taken a river that was running at a uniform flow and turned it into one that goes up and down at the will of Manitoba Hydro.

Mr. Gawne has been quite, purposefully has been quite, made the point that the main driver of releases out of Lake Winnipeg are the inflows. Inflows go up and down reflecting the variability of the water supply. And it did that historically, it still does that now. We do not have the ability with the storage in Lake Winnipeg to really have a significant effect on the uncertainty and the environment. There have been

impacts associated with flooding downstream, but with regard to the lake, the lake essentially is going up and down like it has historically.

THE CHAIRMAN: Mr. Williams, I note that your water supply is getting low and I think it might be time to take a morning break. So would this be an appropriate time?

MR. WILLIAMS: With the panel's permission, just in this area, I have maybe -- actually, it's always an appropriate time, if the panel is asking it's an appropriate time. I have about 10 minutes, but in this particular area, but I think it's probably a good time.

THE CHAIRMAN: Okay. We'll take a break, we'll come back at 11:15.

(Proceedings recessed at 11:00 a.m. and reconvened at 11:15 a.m.)

THE CHAIRMAN: Okay. It's time to get back to work. Mr. Williams.

MR. WILLIAMS: Thank you.

Mr. Gawne, just to finish off the thought from before the break, as part of the HERMES decision support system, does Manitoba Hydro regularly model time flow releases to improve the health of fish populations?

MR. GAWNE: No, we do not.

MR. WILLIAMS: And similarly, sir, I'd be correct in suggesting to you that as part of the HERMES decision support system, Hydro does not regularly model time flow releases to enhance water quality objectives?

MR. GAWNE: That's correct, yes.

MR. WILLIAMS: Perhaps if Mr. Penner will indulge me, back to page 38 for a second?

To the entire Hydro panel, is Hydro aware of any hydroelectric reservoir and generating station operations where the operating objectives expressly include restoring downstream resources and maintaining hydropower capability and flexibility?

MR. SWANSON: I'm not aware of any specifics, I'm aware of the concept, as I have said before, that in other jurisdictions I understand it's been considered. As part of it, I couldn't tell you which specific facilities.

MR. WILLIAMS: Thank you. Just to finish that thought, and if Hydro is not familiar, that's fine. Would Hydro be familiar with the 1996 record of decision of operations on the Glen Canyon dam?

THE CHAIRMAN: Where is Glen Canyon?

MR. WILLIAMS: Glen Canyon would be in Colorado.

MR. SWANSON: I'm not.

MR. GAWNE: I'm not specifically familiar.

MR. WILLIAMS: And I don't need to hear from the whole panel. If someone is familiar, you can speak up, otherwise I will move on.

Mr. Gawne, you spoke of the Bonneville Power Authority and how they build into their operational models simulations relating to the protection of fish habitat. Did I have that correct, sir?

MR. GAWNE: That's my understanding. There is constraints, I believe, that are defined to the benefit of fish, fisheries, and they include that in their modeling, as I understand it.

MR. WILLIAMS: And if you can't go this far, sir, you'll just let me know, but would it indeed be a condition of their licence that there should be expressed conditions for the protection, mitigation of damage, and enhancement

of fish and wildlife? And if you can't answer that --

MR. GAWNE: Yeah, I'm sorry, I can't confirm that.

MR. WILLIAMS: What you can answer, I suspect, is in terms of your licensing constraints, it's fair to say that your licence parameters do not impose expressed conditions for the protection and enhancement of fish and wildlife. That would be fair?

MR. GAWNE: We do have licences on our system that, I believe, based on Environmental Act, the authority of that Act, for instance, the licence at Missi Falls or the Wuskwatim licence would have considered, you know, those are in place for that reason, and others. The Lake Winnipeg Regulation licence or interim Water Power Act licence does not include provisions for that. However, I believe the minimum flow constraint of 25,000 cubic feet per second, although I don't have the specific background on their reason for that constraint, but I would suspect it's partially to assist in the health of water bodies downstream of Lake Winnipeg.

MR. WILLIAMS: And I thank you for the

answer. And just so I can be clear, you are advising me that certain of Hydro's operations such as Missi Falls and Wuskwatim might have the type of conditions I was speaking of, but that Lake Winnipeg Regulation does not have an expressed condition to that effect. Would that be fair? That's what you said, Mr. Gawne?

MR. GAWNE: Yes, that's correct. There's not an expressed condition in the interim licence for that.

MR. CORMIE: Mr. Williams, if you remember the presentation that Mr. Gawne gave, he talked about the Cross Lake weir and how, after the project was put in operation in 1976, there were immediate and severe impacts to Cross Lake under low flow conditions. And many of the concerns with that had to do with the effects on fish. So Manitoba Hydro, in working with the Cross Lake community, came up with the design of the weir to mitigate those, to solve those problems. And so the habitat for fish was restored.

And so to the extent that there needed to be additional rules associated with that, none were identified that couldn't be done through that

mitigation project. And so there doesn't need to be additional constraints on our operation, because we have dealt with that, we have dealt with that issue through remedial works. And that's generally what we have done in all our projects, identify the impacts and try and mitigate them, compensate them with a variety of replacement resources. And our compensation agreements and all our settlement agreements with the communities have looked at those things. And we have, in consultation with them, come to an agreement on how the power system should be up and what the water regime should be. And to the extent that they are impacts, they had been settled under those comprehensive agreements.

Under the NFA, Cross Lake and Manitoba Hydro are still working under that agreement to deal with the adverse impacts of the project, whether they are fish or whether they are socio-economic, but that mechanism is there.

So Manitoba Hydro is fully responsible for dealing with those, unlike these other entities like at the Glen Canyon dam where those external costs weren't borne by those utilities, those trade-offs were made under the licensing

process, where in this case Manitoba Hydro is obligated under agreement to work to remedy those situations. And so our situation in Manitoba is quite different than in these other regimes, where Manitoba Hydro and its customers are bearing the full cost of resolving these issues.

MR. WILLIAMS: And I thank you for that thoughtful answer. And without meaning to be argumentative, or at least not too argumentative, you'll concede that one can see an analytic difference between Bonneville Power, for example, where expressly built into their licensing and into their modeling is the need to anticipate and forecast what are the consequences of flows versus the discretionary choices of Manitoba Hydro. Can we agree on that, Mr. Cormie?

MR. CORMIE: I agree that there are different regimes, that the objectives are achieved differently in Manitoba through the Environment Act and through the Water Power Act, and those are dealt with as constraints. We are not trading those things off. We are regulated and we have a responsibility under the laws in Manitoba to do what we can to protect those interests. And that's what we do. We don't do

more.

MR. WILLIAMS: Again, without being argumentative, in your last answer you were not meaning to suggest that Lake Winnipeg Regulation is regulated under the Environment Act currently, were you, sir?

MR. CORMIE: No, I wasn't.

MR. WILLIAMS: Hopefully the panel does have the CAC Manitoba supporting material, which subject to correction by Ms. Johnson, I believe is CAC Exhibit 1.

And, Mr. Hutchison, I want to direct your attention for a moment to page 3. Mr. Hutchison, you had an opportunity to review the evidence that Dr. Goldsborough filed in this proceeding?

MR. HUTCHISON: I did look at it, yes.

MR. WILLIAMS: And we have presented what we purport is an excerpt from his document. That's a statement that you are familiar with from your review of Dr. Goldsborough's evidence, sir?

MR. HUTCHISON: I don't recognize it exactly, but it is consistent with his previous assertions on the marsh.

MR. WILLIAMS: And, sir, my question

is fairly simple, I hope. Does Manitoba Hydro accept the observations of local residents and Dr. Goldsborough that the biological character of the Netley-Libau Marsh has changed radically over the past three decades?

MR. HUTCHISON: My understanding is that the marsh has changed radically over the past 80 years.

MR. WILLIAMS: That's fine, sir, but there's been an assertion put on the record by Dr. Goldsborough in his evidence that it's changed radically over the last 30 years. And my question is, does Manitoba Hydro accept that premise?

MR. HUTCHISON: We accept the premise to the degree that the study, the time frame that they looked at happened to be 1979 up to a few years ago. So their research time did not include much to do with the previous time, because there wasn't a lot of information available. I think the most they had to go by were air photos from the 1920s, which they compared to later on, which did show emergent vegetation like bulrush and cattail had decreased significantly, and open water, and the marsh extended towards more open water areas.

MR. WILLIAMS: Thank you. And, Mr. Penner, if I could just ask you to flip, if you don't mind, back to Hydro's submission from Tuesday, and page 49?

And this question I think can probably go to Mr. Cormie and Mr. Gawne. And first of all, without asking you to elaborate, and then we'll give you a chance to elaborate in a second. Hydro has expressed its concern that lowering the lake to revitalize Netley-Libau Marsh, as Dr. Goldsborough has suggested, would raise material reliability concerns. Fair enough?

MR. GAWNE: Yes, that's true.

MR. WILLIAMS: And Mr. Gawne, sometimes it may be me as well, I think you and I have moved away from the mic a little bit, so sometimes your voice may be trailing away, as may mine.

I just want to be clear about Manitoba Hydro's position moving forward. And Mr. Cormie, you spoke on Tuesday about achieving a new balance, as we look to a renewal or relicensing of Lake Winnipeg Regulation. Do you recall a statement to that effect, sir?

MR. CORMIE: Yes, I did.

MR. WILLIAMS: In the context of a new forward-looking evaluation of the operating regime for Lake Winnipeg Regulation, would it be accurate to suggest that Manitoba Hydro would be open to an informed debate based on evidence on the merits and risks associated with the proposal such as Dr. Goldsborough's?

MR. CORMIE: Yes, but my concern is this is an issue of public policy and government policy. And to the extent that the government chose to reopen the issue of the licence range as part of the renewal process, Manitoba Hydro would participate in that.

The original licence was driven by two factors. In subsequent studies in the early '70s, as I mentioned in my opening remarks, that considered the effects of a four foot range for power between 711 and 715, considering agriculture, recreation, navigation, wildlife and fisheries all confirmed that that was the best location with that storage between that four foot range, those were the values at that time. So it seems appropriate, as we think about a renewal licence, that confirmation takes place, the value of the Lake Winnipeg resource, including, you

know, modern values that may not have been anticipated at that time be considered. And to the extent that that issue is raised as part of the relicensing process, we will participate in that. But, again, we do not yet have guidelines from government on whether that will be a requirement for renewal licence. The Water Power Act just requires us to apply. It doesn't say to Manitoba Hydro what is needed in order to apply. And I think we would like to have long lead times so that we can prepare for that application. And then to the extent that that balance between interests is an issue, that there's been lots of time to consider that.

Our concern with regard to reliability is, if the value of Lake Winnipeg as a Hydro project is diminished, that we have adequate time to maintain reliability by adjusting our other development plans. And you are aware how long it takes for us to go through that process, from consultation and regulation and studies to supplying a replacement supply of power in order to maintain reliability.

And so I think that Hydro believes that today is a good time to start thinking about

what the implications of a renewal licence to Manitoba Hydro in 2026 would be. And in 10 years or 12 years, I think 11 years from now, in terms of resource development and Hydro development, that's not too soon to start challenging ourselves on what the licence might look like under the renewal process.

And so issues like the Netley-Libau Marsh, is that something that the project needs to address or not? Clearly it should be on the table.

MR. WILLIAMS: Thank you, I'm sure my client appreciates the thoughtfulness of that answer as well.

Just speaking, leaving aside the reliability related to Netley Marsh in the short-term, just in doing planning, longer term planning for Manitoba Hydro, as part of its planning process Hydro will consider sources of energy both from the hydroelectric system, as well as other sources such as imports, new renewables and natural gas generation. Would that be fair?

MR. CORMIE: I believe all those options are on the table, yes.

MR. WILLIAMS: And as we look a little

bit farther down the pipeline, you'll agree that one consequence of the decision to enter into a new arrangement with Minnesota Power is a new tie line, which we expect to come online subject to regulatory approval on or about the 2020/21 year. Would that be fair?

MR. CORMIE: That's the schedule, yes.

MR. WILLIAMS: And again, assuming regulatory approval, Hydro estimates that coming online in that year will be about 1600 gigawatt hours of new import capacity. Would that be about right, sir, subject to check?

MR. CORMIE: Your memory on the 1600 is maybe better than mine. But it is significant, it doubles the import capability for the United States, so it is a significant addition to our dependable supply.

MR. WILLIAMS: And sir, if I have put on the record a wrong number than the 1600 gigawatt hours, I'll leave it up to you to correct it.

MR. CORMIE: Yeah, I don't think anything significant is tied to whether that number is right or wrong. It is a significant value to Manitoba, and ultimately allows us to

defer the construction of generation as a result. So it has offsetting benefits because it is a dependable supply of energy.

MR. WILLIAMS: Okay. So I think that's enough talk about the NFAT, sir.

MR. CORMIE: Thank you.

MR. WILLIAMS: I'm confident that neither you or I want to revisit that experience in the future.

THE CHAIRMAN: Nor do we.

MR. WILLIAMS: If we could turn, on the CAC Manitoba supporting material, to page 4 to start with?

And Mr. Penner, if you could pull down the screen, it's the last three bullets in particular that I want to bring to the attention of the panel and Manitoba Hydro.

Mr. Gawne, you had an opportunity to read the evidence of Mr. McMahon in terms of his review of hydrologic and operational models.

MR. GAWNE: I did, yes.

MR. WILLIAMS: And you are aware that in section 2.2 of his evidence, he identified what he characterized as certain model limitations of the models that he had reviewed of Manitoba Hydro?

You are aware of that, sir?

MR. GAWNE: Yes.

MR. WILLIAMS: And I want to draw your attention to the last three bullets, and you will see that Mr. McMahon is suggesting some limitations in terms of the ability to analyze the implications of climate change, as well as operational and structural strategies that might look at issues such as the protection, restoration of Netley-Libau Marsh. So you see those limitations that he's suggested? Do you see that, sir?

MR. GAWNE: Yes, I do.

MR. WILLIAMS: And for the benefit of my client, our client is wondering whether Manitoba Hydro accepts that these are, those three bullets in particular accurately reflect limitations in the Hydro modeling?

MR. GAWNE: Those three bullets are, if we look at the lead into those bullets, Dr. McMahon is referring to the models that were used to prepare appendix 10 and appendix 4 of the LWR document. So those models were simple models with specific purpose. They were not decision support system models, or SPLASH, or HERMES, or

anything other than that. They were models created to respond to specific questions. So I would agree that those specific models would not be ideally used to analyze these sorts of scenarios that Mr. McMahon is suggesting be analyzed.

MR. WILLIAMS: So to take that thought one point further, going beyond the models used to assist in the analysis for appendix 4 and appendix 10, is Hydro currently capable of addressing the last three bullets flagged by Mr. McMahon?

MR. GAWNE: Manitoba Hydro is certainly capable of modeling its system operations. As you are aware, we do have detailed models of the power system, reservoirs and lakes and the like. So we do have the capability of modeling different changes to the system, be it structural or otherwise. However, that was not the context of the studies in the LWR document.

MR. WILLIAMS: If we can go to page 5, and before you scroll down you will see that these are some of the long-term recommendations of Mr. McMahon. Do you see that, Mr. Gawne?

MR. GAWNE: Yes, I do.

MR. WILLIAMS: Before we get to the

bullets, and I'll give you a chance to comment in a second, but I'll just draw your attention to the last sentence before the bullet where Mr. McMahon is speaking of a requirement for new generation of decision support tools. Do you see that reference, Mr. Gawne?

MR. GAWNE: I do, yes.

MR. WILLIAMS: And then I'll ask Mr. Penner to kindly flow us down to the last four bullets.

Again, at a high level, you will see that Mr. McMahon is suggesting a need for a new generation of decision support tools to look at issues as related to Netley-Libau Marsh, Cross Lake levels, Nelson River flow regimes, including environmental water quality objectives. Do you see that reference, Mr. Gawne?

MR. GAWNE: Yes, I do.

MR. WILLIAMS: And so my client's question to you, sir, is to try and understand, does Hydro currently have this modeling capability and it was just not examined by Mr. McMahon, or does it accept his premise that a new generation of decision support tools is required?

MR. GAWNE: Sorry, can you please tell

me again which bullet specifically you are referring to?

MR. WILLIAMS: I was referring to the last four bullets, sir.

MR. GAWNE: The last four bullets? Okay. So the first of the last four bullets, analysis of effects of operational alternatives on wetlands, certain Manitoba Hydro models are capable of modeling the effect of our operations on the average wind-eliminated level of Lake Winnipeg. We do not have decision support models to model the other factors impacting Netley-Libau Marsh, such as the cut and other factors from the lack of judging against the mouth of the Red River. That would be, I think, some sort of local detailed model of that marsh area, that's not incorporated within our current decision support systems.

In terms of testing and evaluation, now on the third last bullet, testing and evaluation of operational and structural alternatives to better control Cross Lake levels and flow regime. Certainly our models incorporate the operation of Lake Winnipeg Regulation and Jenpeg, and the east channel out of Lake Winnipeg

and Cross Lake itself. So I think our decision support models are there for that.

Testing the evaluation of operational and structural alternatives for shoreline management, we do not have shoreline erosion parameters in these decision support models. As we have said, we model the water level on Lake Winnipeg, and effects such as wind and wind-driven waves and energy on shoreline is not a part of decision support modeling.

And lastly, analysis of operational alternatives using climate change adjusted stream flow, certainly if we are provided with other stream flow scenarios, then we absolutely have the modeling capability to do that. And I think you saw some of that work in the NFAT studies that were done where our development plan was tested against climate change scenarios. Our modeling was used to arrive at those results.

MR. CORMIE: Mr. Williams, I wanted just to jump in because I'm not sure it's clear to everyone that Manitoba Hydro has many models. We do not use Mr. Gawne's suite of models, that are designed for making decisions on what the release of Lake Winnipeg should be tomorrow, for the

purposes of generation planning. We have other models, you are familiar with the SPLASH model. We do not use Mr. Gawne's suite of models for our climate change modeling. Mr. Slota has a whole set of climate change models. And so as we're talking planning the future of the water system, it's clear to me that we will not be using our operational models as part of that. We will use appropriate state of the art models, whether they are climate change, whether they are other models that are available in the industry to study these things. So I want to make sure that we are separating the operational models that are designed to say today this is the set of conditions, what do we do, from long-term planning models which are different. And they are as different as you can imagine.

And to the extent that we need those resources in order to study these issues, we will acquire them, or we will have the expertise in-house to do those studies. But I don't think we should think that Mr. Gawne will be coming up with this answer. This is a planning function, and we have a whole division of planners who have all their own models that are as complex as you

can imagine for looking out 10, 20, 50 years, 100 years, and that's quite a different time frame than what the operational models were using to decide what we should be doing today with regard to releases.

MR. GAWNE: Yes. Thank you, Mr. Cormie, for that clarification. And just to confirm, when I was responding about models, I was talking about the power system models, be that SPLASH or other long-term planning models from Manitoba Hydro perspective, not necessarily operations.

MR. CORMIE: I think Mr. McMahon's exposure to Manitoba Hydro's models was just associated with the operational. I don't think we gave him any exposure to all the other capabilities that the company had. So you know clearly, these are issues that need to be addressed. But to judge our ability to address them based on his discussions with Mr. Gawne, I don't think he was exposed to all the capabilities of the company.

MR. WILLIAMS: And obviously the purpose is for our client to understand what you got and what you need. Let me just back up for a

second. And in terms of Mr. Gawne, in terms of responding to the bottom four bullets, you were speaking in terms of the corporation's capabilities from an overall perspective, not just from, you weren't specifically just addressing HERMES; is that correct?

MR. GAWNE: That's correct.

MR. WILLIAMS: Okay. And so directing your attention to the second last bullet as an example, the one where you, in your view, where the corporation currently did not have the capacity to address some of the questions related to the operational and structural alternatives for shoreline management improvements to the Nelson River flow regime. That's what you indicated previously, sir?

MR. GAWNE: What I indicated was that our decision support models currently don't have a provision for modeling shoreline erosion which is what I believe this shoreline management and shoreline erosion and improvements to deal with shoreline erosion. I believe bullet addresses that. Certainly overall water regime is a product of our modeling.

MR. WILLIAMS: And to the extent that,

and without being pejorative, to the extent that there is a need within Manitoba Hydro to allow its capabilities to evolve, is that an 18 month issue, a two year issue, Mr. Cormie?

MR. CORMIE: Well, I think the Keeyask project was a demonstration of our ability to apply technology to address these issues. And we did modeling on erosion in the Keeyask project, we did a complex water modeling including climate change modeling. That capability exists in the company. We had done that for new projects. There is no reason why we can't use that same technology and apply it to Lake Winnipeg Regulation if that issue comes up.

I'm just making the point that we never exposed Mr. McMahon to all that capability. And I'm not sure how familiar he was with the modeling that the company was able to do and its consultants to deal with these issues. And so these are all great areas that could be addressed.

I don't think we should be asking Mr. Gawne to address those issues with his operational models. His focus is what am I doing now and what am I going to do over the next year, and not thinking about whether the shoreline is going to

erode as a result of changing operational policies. Those will be dealt with by others. And Manitoba Hydro will have the capability to deal with those issues. We have it now. And to the extent that we know what's required, we will put our minds to it and have the best possible answers.

MR. WILLIAMS: And I have your point, Mr. Cormie, and I just want to get to kind of finish up my point. This is not going to take five years for Manitoba Hydro to have its capabilities to the extent that they need to be enhanced. That can be turned around in a relatively shorter time frame.

MR. CORMIE: Well, yes. Mr. Williams, we don't know what the question is yet. So it's hard for me to say how long it will take. If we knew what the problem was, then we would be able to put our mind to giving you an estimate. But there are no proposals to change the Lake Winnipeg Regulation licence. There may be some recommendations coming from the commission as a result of this process. But until we have that kind of direction, I can't tell you whether it's going to take us six weeks or six years to do what

might be required. I think it's just premature to give you that answer.

MR. WILLIAMS: Thank you. Mr. Chair, just in terms of the time, I had originally about 35 pages of notes. I've got about 10 to go but they are relatively quicker. So I'm at the --

THE CHAIRMAN: Our plan was to break at 12:30 for lunch. That's about 35 minutes.

MR. WILLIAMS: Yes, that's fine.

THE CHAIRMAN: And if you don't finish, we'll still be here after lunch.

MR. WILLIAMS: You'll still be here.

I don't have this reference for the panel but, Mr. Cormie, I did share with you a quote from the transcript on Tuesday in which you stated from page 27 of the transcript, you stated:

"The requirement for ongoing renewal of licences ensures ongoing review of projects and that they continue to be in the public interest."

Do you recall making that statement, sir?

MR. CORMIE: Yes, I did. And I said that deliberately because there is many who view Manitoba Hydro's request before government for a final licence is a permanent licence. And we want

to make sure that it's clear that the licence have a life and they need to be renewed. And I can't imagine having a renewal process specified in the Water Power Act and its regulations if they really meant that the licence should be permanent and should never be changed. So renewal implies to me that renewal comes with review and review takes place in the modern context.

And the world is not the same today as it was in 1970. We have different values. We know more. And renewal should take place in that context, again for the public good.

MR. WILLIAMS: I was interested in your use of the word "public interest." And I'm not seeking a legal opinion. But in using that term "public interest," were you referring to the public interest tests set out in section 18 of the regulation or did you have some other meaning, sir?

MR. CORMIE: I wasn't referring to the regulation, I was referring to it in the broadest possible context as a Manitoban and Manitoba Hydro's commitment to doing the right thing.

MR. WILLIAMS: And the point you were making in the context of that general quote,

without meaning to belabour it, is that there has been a material evolution in our values associated with water and water power over the last 40 years. Agreed?

MR. CORMIE: I agree with that, yes.

MR. WILLIAMS: And that as a society, we are looking for a more robust balance between economic, ecological and social issues. Would that be fair, sir?

MR. CORMIE: I'm not sure whether the word "more robust" is appropriate. I think the review is important. You may come up with the same conclusion. It still may be 711 but you have done the work necessary to make sure that that conclusion was drawn based upon today's values. It may result in a change. But it is important that we go through that process.

MR. WILLIAMS: And just going back to climate change for a moment. Would it be fair to say that in addition to the change in values, today we have a much greater understanding of the influences of human activity upon climate. Would that be fair, sir?

MR. CORMIE: Yes, I agree with that.

MR. WILLIAMS: And while we have a

less than perfect understanding of the influences of climate change on precipitation and temperature within our specific area, there is no doubt that it is likely to be significant. Agreed?

MR. CORMIE: The conclusion that you are making that there could be significant changes to what, to the regulation of Lake Winnipeg? Or what are you referring to when you mention the word "significant"? It is a significant issue. What are the implications for Lake Winnipeg Regulation? I don't know if they are significant yet. I don't think we're at that point. The project may be fully capable of managing the changes that occur in the watershed as a result of that, but I don't know that. I can't draw that conclusion that you have suggested.

MR. WILLIAMS: And it wasn't a very good question so I thank you for dissecting it. Let me try again. It would be fair to say that looking to the medium and longer term, that climate change coupled with watershed development change have the potential to alter inflows to Lake Winnipeg. Agreed?

MR. CORMIE: Yes. And we see that as, you know, as more land drainage occurs, more

diversion channels are built, the pressures on Lake Winnipeg are increasing. Climate change to the extent that it adds to that, it will affect the lake.

MR. WILLIAMS: And without prejudging the outcomes with changes to inflow, we can anticipate the potential for habitat alteration and flood potential. Agreed?

MR. CORMIE: That potential is there. I don't believe we understand yet the effect of climate change on extremes. So I don't know if I can say that the flood potential is getting any worse. It's pretty bad already because you have seen from the record how extreme the prairie climate already is. Will climate change make the extremes even worse? I don't think we have come to that conclusion.

MR. WILLIAMS: And that uncertainty, sir, suggests the need to be particularly alive to the requirement for robust adaptive management in the face of uncertainty. Agreed?

MR. CORMIE: I agree that we have to adapt as time goes on, yes.

MR. WILLIAMS: Mr. Penner, if you would, if we can turn to page 187 of Manitoba

Hydro's filing from Tuesday. And Mr. Cormie, before directing your attention to that page, you said both on Tuesday and yesterday and today, you spoke of the need to strike a modern balance between upstream and downstream and to benefit all Manitobans. Agreed?

MR. CORMIE: Yes.

MR. WILLIAMS: Now on page 187 in the powerpoint, Hydro suggests that the original licence decision balanced competing interests. Do you see that suggestion, Mr. Cormie?

MR. CORMIE: Yes.

MR. WILLIAMS: And just so our client understands the implications of that statement, is Hydro suggesting that there was an equitable balancing of interest in the original licensing decision between downstream users, upstream users and rate payers?

MR. CORMIE: I can't speak to the issue of equity. The decision was made and it is what it is. I'm not in a position to judge that.

MR. WILLIAMS: So Manitoba Hydro in that statement was not offering a judgment on whether it equitably balanced those interests?

MR. CORMIE: That's correct, yes.

MR. WILLIAMS: But given your observation by Hydro that there were significant downstream effects, would Manitoba Hydro be aware of a potential concern that in confirming a final licence out to 2026, we would in effect be confirming an inequitable relationship between the downstream, the upstream and the rest of the province?

MR. CORMIE: Again, I can't speak to the issue of equity. All I can speak to is that there have been impacts and adverse effects. And we have worked with as many of the affected communities that we know of to address those effects and settle with those communities around those effects. And the settlement agreements are signed by two parties. Manitoba Hydro sits at the table and we negotiate and we find something that will work for both of us. And they are settlements.

So, you know, there may be still issues that haven't been resolved and we're still working on those, we are committed to working on those. But it's not that these issues have come along and Manitoba Hydro said you know what, that decision was made and we are not going to deal

with them. We have been dealing with them. And Mr. Sweeny has been negotiating these agreements. I believe that there's somewhere around a hundred of them with all the stakeholders to settle for those effects.

Now was the initial decision equitable? I don't know. But I know that we have been living with that decision and trying to compensate, mitigate, adapt to that situation.

MR. WILLIAMS: Okay. Thank you. Mr. Penner, if you don't mind turning up from the CAC supporting materials page 6.

Mr. Cormie, in your evidence on Tuesday, you answered the question why has it taken 40 years or something to that effect. Do you recall that discussion?

MR. CORMIE: Yes, I do.

MR. WILLIAMS: In terms of the implication of confirming the interim licence, am I correct in suggesting to you that under Wisconsin legislation, for Manitoba Hydro to meet the renewable test, one element is the written confirmation from the province that the interim licences, in terms of LWR and Churchill River Diversion, had been replaced by final licences?

Is that your understanding, sir?

MR. CORMIE: The Wisconsin legislation Act 34 only allows a Wisconsin utility to count a power purchase from Manitoba Hydro as renewable once the Lake Winnipeg and Churchill River Diversion final licences had been issued.

MR. WILLIAMS: Thank you. Just a couple of short snappers in terms of clarifying the record. And perhaps, Mr. Penner, if we can go to page 7 of this same document.

And, Mr. Cormie, you'll agree with me, subject to check, that I am providing you with a citation from the Institute for Sustainable Development suggesting that the cost of a five year drought in 2007 was calculated to be between 2.2 billion and $3.5 billion in Canadian dollars?

MR. CORMIE: I accept that, yes.

MR. WILLIAMS: And if we just turn to page 8 of this same document, sir.

Thank you, Mr. Penner.

Without in any way trying to be making any conclusions, but since 2007, things have changed including the prices that Manitoba Hydro gets in the export revenue market, sir. Would that be fair?

MR. CORMIE: Yes. Each year the utility does its IFF and one of the sensitivities we check on is what would the cost of drought be? It's a risk that the company faces. Drought can start at any time. And that cost will change over time. Conditions in 2003 are different than they were when this estimate, and they are different today. So each year we update that number. So it goes up and down, depending upon the situation.

MR. WILLIAMS: And if we were to big picture the conclusions or the calculations from a five to seven year drought as provided in the most recent Hydro rate application, the range would be between 1.7 billion for a five year drought up to about 2.1 billion for a seven year drought. Would that be fair?

MR. CORMIE: Yes, I agree with that.

MR. WILLIAMS: Mr. Cormie, you'll recall your extensive discussion with Mr. Shefman yesterday about the role that Aboriginal traditional knowledge plays in new developments as compared to the role that it may play in existing projects such as Lake Winnipeg Regulation?

MR. CORMIE: I remember that, yes.

MR. WILLIAMS: And certainly in the

context of new development, Mr. Cormie, you agreed with the importance that ATK had played in Manitoba Hydro's deliberations in terms of scoping the environmental assessment, modifying design of the project and also in ongoing adaptive management. Agreed?

MR. CORMIE: Agreed.

MR. WILLIAMS: And it would be fair to say that in the context of new developments, Manitoba Hydro would take the position that western science and ATK are deserving of equal consideration and weight. Would that be fair?

MR. CORMIE: I think they are both valuable inputs into the decision, yes.

MR. WILLIAMS: And the corporation in the context of new developments would also be of the view that it would be important to make efforts to reconcile differences if they existed between western science and ATK. Would that be fair?

MR. CORMIE: You know, I'm not that familiar with that part of it, but I'll accept it as reasonable.

MR. WILLIAMS: And if you feel uncomfortable, Mr. Cormie, or more uncomfortable,

you'll let me know.

MR. CORMIE: You're speaking to an engineer, Mr. Williams. I'm way out of my depth already, so.

MR. WILLIAMS: Well there's others on your panel, and so this can go to the whole panel. The corporation would accept that ATK is particularly critical in the face of western scientific uncertainty. Agreed?

MR. SWANSON: I think that ATK is understood, as Mr. Cormie said, as a valuable input to the process, that it's part of the picture. And probably especially important in terms of beginning to understand western science perhaps. They play a role in supporting, confirming ATK perspectives as a scientific method.

MR. WILLIAMS: And as we look to issues of monitoring, assessing and mitigating the effects, if any, of Lake Winnipeg development, both upstream and downstream, the corporation would no doubt agree, moving forward, that it is especially critical to seek guidance from ATK. Would that be fair?

MR. SWANSON: As I previously stated,

we understand that it's a valuable contribution, and so agree that it's important information to have.

MR. HUTCHISON: I think we might also add that although we recognize there are differences, it hasn't always been possible to reconcile these differences.

MR. WILLIAMS: Would you go one step further that in the event there is uncertainty in western science, it is particularly important to seek the insight of ATK?

MR. CORMIE: Mr. Williams, in any relationship, respect is of great importance. And in values of communities that we may not appreciate, but they are values, and they are heartfelt and they are important, out of respect we would want to accept that as being a value and not making a judgment whether it's a good value or not. And so I think our attitude to, our dealings with Aboriginal communities is those values are important. And out of respect for Aboriginal people, they are what they are. And they should be part of the process. And not trying to reconcile the difference, we don't necessarily have to reconcile, we just have to know that those

are values and should be part of the decision-making.

MR. SWEENEY: If I can just add.

MR. WILLIAMS: Yes, please.

MR. SWEENEY: As far as Aboriginal knowledge being involved in the process, my understanding is the information provided by the Aboriginal peoples that had been affected downstream can be seen in the various environmental studies that have taken place since the early 1970s and into the '80s with various communities, with various community organizations, with elders that have participated during those sessions, with trapping associations. All this input that comes into Manitoba Hydro either leads to mitigation measures, leads to programs, leads to agreements. So this is a big part of what comes in over the years working with Aboriginal peoples.

So I just wanted to add that piece as well. So what comes from this is looking at ways you can avoid it with information coming in but also looking at ways you can have additional measures to deal with the various adverse effects that pertain to LWR.

So in the various forms of our agreements over the years that we have with the various first nation groups that have been impacted, that have put their input into some of the impacts are incorporated in the various processes that are developed from these agreements.

In addition to the agreements, we get into programming. Some of the programming that's developed to address the effects, the LWR adverse effects downstream are the very programs with the input we received from the various discussions. And these discussions could go on, they could go on for years. And the input received. And they end sometimes with an agreement but they also end with the various programs we have in place such as our various debris programs, our safe ice trail programs. Those are ways that the input received from the very people that are impacted, they are incorporated into these programs. They are incorporated into our agreements. And they are incorporated into the various assessments, the environmental assessments that have been done over the years. That's Aboriginal input into the process.

MR. WILLIAMS: Mr. Sweeny, I thank you for that. And just to confirm, your answers were confined to downstream of the LWR?

MR. SWEENEY: That's correct, yeah.

MR. WILLIAMS: And just to finish up, Mr. Cormie, going back to you, and I think we just have a semantic deference here. In our discussion of Aboriginal traditional knowledge, you spoke of respect and values. But the corporation would concede, it's also a different knowledge source as well derived from a rich cultural and interactive understanding with the environment.

MR. CORMIE: Yes, I agree to that.

MR. WILLIAMS: Mr. Chair, this may be a record in the sense that I was going to tell you it was going to take me till 12:30 and I think I might have actually beat that by perhaps only a minute, but I'm pretty proud of my first time ever coming in under budget.

THE CHAIRMAN: We will confirm, that is the first time in our experience anyway, and we welcome that in future. We'll hold you to these standards in the future. Thank you very much, Mr. Williams.

MR. WILLIAMS: And thank you to

Mr. Penner. It wasn't required but it was much appreciated.

THE CHAIRMAN: You are actually about 10 or 11 minutes ahead of your schedule.

So I suspect that Pimicikamak will have more than 10 minutes worth of questions so we'll hold off until after lunch. So we'll break now and come back at 1:30.

(Proceedings recessed at 12:19 p.m. and reconvened at 1:30 p.m.)

THE CHAIRMAN: Okay, good afternoon. We'll resume cross-examination of Manitoba Hydro. Up now is Pimicikamak.

Please introduce yourself for the record and then proceed.

MR. RAINING BIRD: Hi, I am Jeremiah Raining Bird for Pimicikamak. I think I've figured out -- okay. So you will have to forgive me if I'm not as eloquent as Mr. Williams, but...

THE CHAIRMAN: Nobody is.

MR. RAINING BIRD: I have been in Toronto for a few years.

If we can just put the slide on page 39, slide 39.

Now, this diagram recognizes that in operational decisions, there is a balancing that needs to be done between supply and demand, with consideration given to a number of externalities as represented by those, the safety, reliability and everything at the top; is that correct?

MR. GAWNE: That's correct.

MR. RAINING BIRD: And in considering those externalities, there is no specific guidelines or objectives for any of the five, or four listed there, five listed; is that correct?

MR. GAWNE: Sorry, for any of the four listed?

MR. RAINING BIRD: For the externalities listed there, there is no specific guidelines that are implemented in coming to an operational decision when considering those externalities.

MR. GAWNE: Well, with respect to safety, I don't think that -- safety is our top priority within the company, so that guideline per se governs. And reliability, we do have, in terms of energy operations planning, we do have criteria. Mr. Williams earlier introduced our planning criteria and how we plan our system, but

we also have criteria in our operations to ensure that we are planning the energy, the operation of the system reliably in terms of energy reliability.

Specific criteria on social and environmental constraints beyond our existing licence, no, I don't think that we have specific criteria on those.

MR. RAINING BIRD: Okay, thank you. I should have been more clear those were the two that I was interested in.

And so what would follow then from that is that there is no specific criteria involved, or specific goals for the preservation of wildlife habitat conditions downstream, as an example?

MR. SWANSON: Not beyond what would be contained in the licensing conditions and what was considered at the time, I think.

MR. RAINING BIRD: So, in that sense, the amount of weight to be given to any of the, as far as societal interests or environment, it is largely discretionary, within Manitoba Hydro's discretion?

MR. GAWNE: I think to the extent that

the existing licences, and there are environmental act licences elsewhere in our system, those aren't considered discretionary. Like the minimum flow requirement out of Lake Winnipeg Regulation is adhered to as a licence requirement. I mentioned earlier sites such as Wuskwatim where, you know, their environmental requirements there, those criteria are adhered to strictly.

MR. RAINING BIRD: But in terms of this licence and operating within the specified conditions and constraints within this licence, when operating within those constraints the amount of weight, I guess, to be given to environmental or societal interests, in that way it is discretionary, within Manitoba Hydro's discretion?

MR. GAWNE: Yes, to the extent that -- for instance, if we operate Jenpeg less aggressively than the allowances under the licence -- for instance, flow changes at Jenpeg are generally made in smaller steps and allowed under the licence, and that's under Manitoba Hydro's discretion. Unless, of course, you know, Lake Winnipeg levels go above 715 feet, then we need to exercise maximum discharge. And it is under those conditions where we would kind of

press up against the flow change constraints at Jenpeg.

MR. RAINING BIRD: And that would keep you in line with the terms of the licence, the conditions of the licence, correct?

MR. GAWNE: In line with the terms of the licence, yes, in terms of flow change constraints, and as well the requirement to go to maximum discharge.

MR. RAINING BIRD: Okay, thank you. And this diagram, I'm just going to venture a guess that this is not, this would not be representative of the new balance that Mr. Cormie has referred to previously?

MR. CORMIE: I think in principle, whether it is an old balance or new balance, this diagram would be a constant. And there may be more factors that needed to be considered, in a new balance there may be new constraints, but there would always have to be a balance made.

MR. RAINING BIRD: Thank you. If you go to slide 40?

Now, I believe when this slide was being explained, one example that was given of how external input could factor into a decision was

the slush ice conditions downstream; is that correct?

MR. GAWNE: Yes, that's correct.

MR. RAINING BIRD: Are there any specific guidelines or threshold limits that govern a decision as to the prevention of slush ice conditions, or whether the prevention of slush ice conditions -- is there a certain limit or threshold that needs to be reached in making those operational decisions, that can't be crossed I suppose?

MR. GAWNE: Subject to correction, there is no specific licence restriction that requires our operation to be restricted in a certain manner relative to the amount of slush ice that's created downstream, or slush conditions created downstream. However, we do have as part of our practice, again, within the confines of the licences we have, we do operate to try and minimize that impact. And I think we spoke to that in our plain language document as one of the practices that we undertake to try and limit the effects on ice travel downstream of Lake Winnipeg.

MR. RAINING BIRD: So in making that operating decision to try and adjust the operation

to limit those conditions, that is also a decision that's discretionary for Manitoba Hydro, as long as it operates within the parameters of the licence, of course?

MR. GAWNE: Yes, we operate within the parameters of the licence, with consideration on impacts on stakeholders, be it slush ice impacts or water level changes. So there are operating decisions that are made with consideration of those impacts and some of those operating decisions are discretionary.

MR. RAINING BIRD: Are there any written annual reports that detail these types of decisions responding to, for example, Pimicikamak travel concerns, any documentation that would support or backup these types of decisions and then be reported to the community?

MR. GAWNE: I think one form of documentation of these decisions is the historic operating information in terms of what flow releases were made at various stations. Now, does that documentation, the actual historic flows and levels, does that identify how those and why those decision were made? No, not specifically. But I think the historic operation is one record in the

course of our operating decisions.

MR. SWEENY: Just to add to that, in regard to slush ice conditions downstream, we do also have a safe ice trail network of employees that monitor, install and monitor the safe ice trails within the Cross Lake resource management area. So in the case of slush ice or extreme slush ice conditions, the staff would record some of the slush ice.

MR. RAINING BIRD: Thank you. And if you go to 42?

I believe this slide explains that operations can be tempered to address concerns about the environment, is that correct?

MR. GAWNE: Yes. If I may, Mr. Raining Bird, if I could add a little bit to that previous response, that there are other factors that result in slush ice on Cross Lake and other lakes downstream. You know, as we presented on Tuesday, our typical operation of Lake Winnipeg Regulation in the winter is to exercise LWR to obtain maximum discharge through the winter for power purposes. But ice conditions at the outlet of Cross Lake and ice conditions in the east channel of Cross Lake, and the west channel --

pardon me, east channel and west channel of Lake Winnipeg will affect the flows that are going into Cross Lake. Ice at the weir will affect levels on Cross Lake. So it is not to suggest that levels on Cross Lake are entirely controllable through operation of Lake Winnipeg Regulation.

MR. RAINING BIRD: I understand. My concern or my question was more focused around a documentation and reporting process as to specific concerns of communities that documents when concerns were voiced and when they were addressed, and when they had an influence on actual decision making. And I take it from your previous answer, correct me if I'm wrong, the answer to that was no?

MR. GAWNE: We do not, to my knowledge, have external documentation that identifies all of those decisions when that discretion was made.

Sorry, Mr. Hutchison reminded me that, of course, when we do make these operating decisions and have a planned operation, we are providing forecasts to the communities that are impacted by our operation. So that's a regular course of our business is to provide forecasts of

those changes.

MR. RAINING BIRD: I understand. Thank you. So back to this 42, slide 42?

This slide explains that operations are tempered to address concerns about the environment; that's correct? Right?

MR. GAWNE: That's correct, that's what that reads.

MR. RAINING BIRD: And one of those environmental conditions would again be the presence of slush ice downstream?

MR. GAWNE: That's one condition, yes.

MR. RAINING BIRD: An example of a condition?

MR. GAWNE: One example of a condition, yeah.

MR. RAINING BIRD: Are there any specific operating constraints that address the formation of slush ice downstream?

MR. GAWNE: If you are looking for a specific constraint, I'm not aware of a specific constraint that we have to minimize slush on downstream lakes, other than, of course, the flow rate of change constraints and the minimum flow constraints at Jenpeg. Obviously, the

construction of the weir at the outlet of Cross Lake affects water level changes, and the degree that water levels will change on Cross Lake as inflows change. But we do have in our regular practice, and we have explained this in our plain language document, that prior to freeze-up, it is our intent to try and minimize the effects of slush ice and water level changes after freeze-up, is to have flows such that Cross Lake levels will freeze in at levels close to where we anticipate that lake to be following the ice stabilization program. So the idea is to have the lake freeze in at a level that's not that much different than we expect the level to be later in the winter, at which case, or the intent of that is to minimize the slush effects on Cross Lake and other downstream lakes.

MR. RAINING BIRD: And so if concerns are raised by any downstream communities as to the effects of that -- sorry, what is the term -- cut freeze-up?

MR. GAWNE: Ice stabilization program.

MR. RAINING BIRD: The November cut back?

MR. GAWNE: The November cut back was

what we had originally referenced that program to, yes.

MR. RAINING BIRD: Okay. So there are specific concerns from the community. Are there, again, any specific guidelines or reports, documentation that would show how those concerns are addressed in terms of effect on operational decisions?

MR. GAWNE: When we conduct the ice stabilization program, you know, that program has evolved over the years certainly, and part of that operation is to monitor conditions on Cross Lake, and to be in contact with our Manitoba Hydro staff in Cross Lake, and to understand the effects of the ice on Cross Lake. So, part of the objective of that program is to minimize effects on Cross Lake. So whether that's a documented criteria, I'm not sure if that fits your definition of that, but it is certainly a guideline in our operation of Lake Winnipeg Regulation ice stabilization.

MR. RAINING BIRD: Certainly there is nothing within the licence that would mandate you to do so, to minimize slush ice?

MR. GAWNE: Other than the constraints on flow changes at Jenpeg, and the rate of change

that flows can be changed at Jenpeg, I don't believe there are any constraints in the licence that would directly address slush ice on Cross Lake.

MR. RAINING BIRD: So then, not to belabour the point, but similarly to the environment, wildlife, habitat, anything of that sort, the decisions that Manitoba makes, as long as they are operating within these constraints of the licence, are largely discretionary?

MR. GAWNE: Yeah, I think we are required to operate within our licence and we do that, and operations within that are at the discretion of Manitoba Hydro but, again, it is with those considerations in mind. I provided examples, I believe yesterday on, for example, operation of Lake Winnipeg Regulation in terms of flood protection. Manitoba Hydro is obligated by the licence to go to maximum discharge when water levels exceed 715 feet, and when we increase flows to that amount, it obviously impacts downstream users. If we have the benefit of foreknowledge, such as we did in 2013 when Alberta was experiencing record flooding, and Manitoba Hydro responded and began implementing flow increases at

Jenpeg at a rate that was below the maximum allowable under the constraints of the licence. So that's a tempered operation of flood control at Lake Winnipeg beyond the obligation that's set out in the licence. And it is those types of operations that that point refers to.

MR. RAINING BIRD: Thank you. If we could go to slide 62?

Now, it is my understanding that the CEC asked Manitoba Hydro to investigate or analyze possible changes to the licence in terms of increasing or decreasing the maximum water level, and correct me if I'm getting the terminology wrong, from 715 to 714 or 716; is that correct?

MR. GAWNE: Subject to check, I think we were asked to update the economic analysis associated with changes to that aspect of the licence. Manitoba Hydro, I believe the decision was to go a little further and explain what might the water regime look like under those scenarios, which is the subject of appendix 10.

MR. RAINING BIRD: But those are the only two alternative models that Manitoba Hydro has considered; is that correct?

MR. GAWNE: Yes. As part of this

licence finalization process, I believe that was the two scenarios that we investigated in detail.

MR. RAINING BIRD: And I believe, and again you will have to correct me if I'm wrong, but when Mr. Williams was cross-examining you, you did indicate that it is within Manitoba Hydro's capability to model for all sorts of different possible conditions. And one of those could be possibly the change of the -- what is the term I'm looking for -- the change of the rate per day, what is the 15,000 cubic feet per second rate per day. So one model might be changing that rate, lowering it or increasing it, those could be modeled for. Am I correct in my understanding?

MR. GAWNE: Yes, that's correct. And perhaps it helps the discussion earlier about discretion and trying to temper operations. In our modeling today, of course, we have the capability to model these constraints that are provided in the Lake Winnipeg Regulation licence. But we have additional constraints embedded within our modeling and our decision to support, to assist in trying to consider the stakeholder impact that I spoke of. We call it, it is called a dog cone constraint. I don't know if you ever

owned a dog, but if they ever have to wear one of those ugly conical collars. What it is, is a constraint in our operation planning models that limits the amount of change in Jenpeg, basically limits the amount we will let the model recommend changes in Jenpeg. And that constraint typically is set at 15,000 CFS per week. And we use that often in our decision analysis, which is obviously much more restrictive than the 15,000 KCFS per day that's defined in the licence. So the models are capable of reflecting various constraints on the system.

MR. RAINING BIRD: So my only point is simply that it was only these two alternative models that Manitoba Hydro was requested to provide for this specific hearing?

MR. GAWNE: To answer the specific questions associated with raising and lowering the upper limit of what our licence, upper limit of power production range, a specific model, a very simple watered down model was created to answer those questions. That was a separate model. As we explained earlier, we are confident with the operations models that we typically were using.

MR. CORMIE: Mr. Raining Bird, just to

put the 15,000 number in perspective, that's a change in any 24-hour period. If you go back through the historical record and go back to 1976, and measure what the median change was on a daily basis, I think it is around 1800 cubic feet per second. So the change that normally occurs is very small, and you have to go elevate to some kind of emergency events, very few per cent of the time does the actual record show that we were up above 15,000, and in some of those circumstances that was in response to emergencies. So, you know, just saying this just to put in context how often the 15,000 CFS is actually triggered, and it is quite a small per cent of the time. And most of the variation that occurs day-to-day is associated with wind and those kind of natural effects associated with the ice and weather actions. It is not something that Manitoba Hydro is every day bumping up and down against the 15,000 CFS.

MR. GAWNE: If I could just add to that point? Prior to Lake Winnipeg Regulation, water levels on Cross Lake would have been impacted by wind effects on Lake Winnipeg. So as we talked about yesterday, or the day prior, the

north basin and the south basin of Lake Winnipeg are susceptible to wind, so the outlet area of Lake Winnipeg can be blown up or down because of persistent winds, and that results in changing the outflow from Lake Winnipeg under prior LWR conditions, which in turn result in water level changes on Cross Lake. Those level changes would have been likely in the order of what a 15,000 CFS change at Jenpeg would have affected Cross Lake by, after the weir was constructed.

MR. RAINING BIRD: Thank you.

Would you agree that some, and not all, natural floods or drought can actually be beneficial to ecological systems?

MR. SWANSON: Yes.

MR. RAINING BIRD: Could we go to page 75, or slide 75?

And would you also agree that it is generally accepted that riparian ecosystems are known to change in direct response to water regulation?

MR. SWANSON: Sorry, could you say that again?

MR. RAINING BIRD: Would you agree that it is generally accepted that riparian

ecosystems are known to change in direct response to water regulation?

MR. SWANSON: Yes, I think -- it is well accepted, I think, that water regulation can affect riparian ecosystems. Just switch that around maybe.

MR. RAINING BIRD: Okay. So then would it not be appropriate to monitor riparian ecosystems, in addition to aquatic ecosystems, as provided for in the CAMP program on the slide?

MR. SWANSON: I don't think it would be inappropriate to monitor riparian ecosystems. The program is the product of the concerns that were heard to that point. I'm not disagreeing with you, I'm just sort of pointing to the history and the development of it, that's all.

MR. RAINING BIRD: I appreciate the use of the double negative there.

Now, again, just moving on to the trophic relationships in the system now, bear with me because I never heard of any of this before the hearing. So if we are concerned and we are interested in trophic relationships in an ecosystem, wouldn't monitoring additional species other than those in CAMP, and I'm talking about

aquatic fur bearers such as muskrat, waterfowl, amphibians, and fowl birds in riparian habitats, would that not make sense and give a fuller understanding of the effects of the hydroelectric development?

MR. SWANSON: Yes, that would give a fuller understanding.

MR. RAINING BIRD: If we could just move to page 83?

Again, you are going to have to bear with me. I believe that we asked a similar question in an information request, but we are hoping to get a little more information.

Walker Lake here in this graph is shown as an off-system lake. Is that correct?

MR. SWANSON: Yes, it is in that graph.

MR. RAINING BIRD: My understanding of the reason behind that is that it is not directly influenced by LWR every month of the year, but during high water years, and essentially that is -- again correct me if I'm wrong -- at a level over 207.57 metres in Cross Lake, it is effectively on system. Is that correct?

MR. SWANSON: I understand that there

are impacts, depending on the water level of Cross Lake that it affects the water level of Walker Lake. And that's what you are referring to, correct, that it is at times affected by water levels on Cross Lake?

MR. RAINING BIRD: Yes. My understanding is that if the water level rises above the 207 and a half metres, it becomes affected by the levels there in Cross Lake?

MR. SWANSON: Right. Okay.

MR. RAINING BIRD: Then again, is it correct to state that Water Survey of Canada data shows that between 1992 and 2013, this was the case ten months out of the year, on average?

MR. SWANSON: Yeah, I understand that during the high water period that was the case.

MR. RAINING BIRD: So, essentially this graph is comparing water quality as between two lakes that were effectively on system for the majority of the year?

MR. SWANSON: So, maybe a little bit of explanation about on and off system water bodies in CAMP and the designation of that. We have been very careful to try and stay away from the traditional understanding of the word

reference water body, because there aren't many water bodies that are available that would take the place or stand for the water bodies that are on the system that has been affected. It is just, you know, they are typically not midstream water bodies on a large river system. What they were intended to do was reference local climate regional issues as the best comparator that we could find. We worked with Provincial Fisheries Branch who, based on their experience and their understanding of the issues in the communities, interests and issues, selected water bodies that were representative of, that were clearly on-system, but others that were more representative of off-system. And Walker Lake kind of falls into that intermediate category.

And it is useful in the sense that it provides something in the gradation from on-system to truly off-system, and over time its additional, I guess that additional layer, I perceive, will add some additional interpretive value, looking at those times and those impacts when it was connected via high water levels on Cross Lake. So we acknowledge that it is in that intermediate area, it is referenced as off-system here because

it is not clearly on-system, if that makes sense.

MR. RAINING BIRD: So for a dummy like me who is reading this, I shouldn't take that literally when you refer to on-system versus off-system?

MR. SWANSON: I think that Walker Lake is probably the example that we could have it striped green and blue, perhaps, to have it clearer, but...

MR. RAINING BIRD: Okay. Thank you.

MR. GAWNE: Perhaps if I could just add to that? If we looked at -- consider that water levels on Cross Lake when they are in that 207.5 and above range, which is where we've established I believe that the effect to Walker Lake is, that occurs under high inflows to Cross Lake. And the patterns that we've seen pre and post LWR, post weir levels for high flows are similar. If you went to appendix 3, figure 12, which shows monthly average Cross Lake water levels during high flow years, the patterns are quite similar. So the point there is, under high flow conditions without LWR, Cross Lake levels would have also been high. And that effect with Walker Lake would have existed under high flood

conditions without LWR being in place.

MR. RAINING BIRD: Okay, thank you. If we go to page 87?

Now, this summary suggests studies have shown that water quality changes in the outlet lakes were of small magnitude following the LWR, and pre LWR data are necessary for this assessment based on measured parameters. Is that correct?

MR. SWANSON: Your first question about the level of magnitude of change, what is included are quotes from the report's authors, and that's a direct quote from the report in terms of their determination of the level of value, or magnitude of change rather.

MR. RAINING BIRD: And when we are talking about a direct quote, we are talking about the Williamson and Ralley's 1993 report?

MR. SWANSON: Yeah.

MR. RAINING BIRD: In that case, in that study was it the case that the first water quality samples that were taken in that area were done so in the period of 1972 to 1975?

MR. SWANSON: Yes, that study looked at specific time periods, pre and post, and with

the water quality information that was available to determine whether there were changes or not in terms of the parameters that they looked at. And they looked at different subsets of years, and generally came to, they came to that conclusion looking at pre and post LWR.

MR. RAINING BIRD: And so the reason that that report I guess would be considered useful would be that there is actual pre LWR data, the 1972 to 1975 period?

MR. SWANSON: Yes.

MR. RAINING BIRD: But isn't it also the case that in that period construction had already begun?

MR. SWANSON: Possibly, I could double check the exact years. I know we referenced it in the plain language document.

MR. CORMIE: Mr. Raining Bird, I was at Jenpeg the day they started building the cofferdam in the tailrace for the spillway in 1972, and you are correct, the construction, there was in-water construction in that period of time.

MR. RAINING BIRD: Thank you. I suppose it is a little unfair of me because it is actually mentioned in the report as a limitation

to the study. I just wanted to draw that out.

Are you aware of any further discussion of the possible effect of construction activities during that four-year period on the water quality data?

MR. SWANSON: My understanding is that the reason that the reports reference temporary impacts is due to the construction activities, that the most profound changes were associated with the construction of the channel and increased turbidity, but that that was, in their conclusions, was time limited.

MR. RAINING BIRD: So, I'm sorry, is it your opinion, or is it your position then that the pre-construction activities would not have any effect on the water quality?

MR. SWANSON: Sorry, pre-construction activities?

MR. RAINING BIRD: When I say pre-construction, I mean when it was being constructed, the '72 to '75 period, is it your position that those activities would have no effect on the water quality downstream?

MR. SWANSON: I think what -- I know what I'm saying is that the effects that were

documented were largely time limited around the construction activities. The bigger increases were the increased turbidity, total suspended solids associated with the excavation and construction of the channel. So the construction activities had an impact, but over time those changes were lessened because the activities stopped going on, there wasn't as much disturbance sort of ongoing. Does that make sense?

MR. RAINING BIRD: Are you speaking about within the time period of 1972 to 1975, or from 1972 over the entire period of the study?

MR. SWANSON: Without specifically saying how long those impacts lasted, they would have been associated and would have started lessening when construction was complete.

MR. RAINING BIRD: Okay. So would you agree with me that water quality monitoring and data interpretation is extremely complex?

MR. SWANSON: I don't think it is simple and I don't -- I think especially the changes in methods and site locations, the lack of continuity from pre LWR to date makes it subjective at least. And yes, I guess in that sense, yes, complex.

MR. RAINING BIRD: So given that complexity, and given the limitation noted by the authors in this study, would it be fair to say that the data that is available there is not sufficient to draw the definitive conclusions about water quality pre and post LWR downstream?

MR. SWANSON: Yeah. And what we have done is presented the summary of those results, the conclusions of those results. The CAMP protocol, the CAMP water quality sampling is a continuation with the intent to better understand what the state of the water quality is.

MR. RAINING BIRD: And just one example, one possible reason for why construction period water quality might be -- might affect downstream would be the releasing of sediment during construction which can be destructive to fish habitat?

MR. SWANSON: Yes. Conceptually it would be something that you would look at with respect to fish habitat.

MR. RAINING BIRD: Thank you. Go to page 89.

There is a quote in this summary as well from Williamson and Ralley stating that the

changes:

"The water quality changes after LWR probably had little effect on vegetation and aquatic organisms as all statistically significant changes were below the Manitoba surface water quality objectives."

Can you just confirm that in that study they were referring to aquatic vegetation and not riparian vegetation?

MR. SWANSON: That's my understanding.

MR. RAINING BIRD: And to follow up on that, can you also confirm that there has been no study of riparian vegetation or riparian habitat structure in Cross Lake or Sipiwesk Lake?

MR. SWANSON: The information that we had available to write the report is in the report. There were some IR requests that asked about shoreline classification works, and I think there are works that were undertaken in other areas. There may be data or information that has been collected. There weren't reports available sort of to summarize them that we used. So in terms of confirming that there is or there isn't, there weren't reports that we found to describe

riparian vegetation and health.

MR. RAINING BIRD: So maybe then just there are none that you are aware of.

MR. SWANSON: Reports, well, yes. Okay. Fair enough.

MR. RAINING BIRD: If we go to slide 90?

So, the values summarized here on this slide show a portion of the data that was reported in the 2014 CAMP report; is that correct?

MR. SWANSON: It is the 2008 to 2011 CAMP.

MR. RAINING BIRD: 2008 to 2011?

MR. SWANSON: Sorry, 2010.

MR. RAINING BIRD: Okay. Can you just confirm that total phosphorous measurements for the whole year, or for the time period indicated here, in Playgreen and Cross Lake are relatively high and are above the Manitoba narrative guideline for total phosphorous?

MR. SWANSON: Yeah. The previous graph where we talked about Walker Lake, there was actually, the phosphorous -- 83. So the dash behind on the bottom is the guideline for total phosphorous. It is at .025 milligrams per litre.

So you will see that the phosphorous, total phosphorous is above the narrative guideline level for the on-system water bodies, and that would reflect the source of the water being Lake Winnipeg.

MR. RAINING BIRD: Sorry, my eyes are -- okay, so we are just talking about the first dotted line running through the middle there?

MR. SWANSON: The one at .025?

MR. RAINING BIRD: Yes. Okay. If we can flip back to the other slide, I think it was 90.

Okay. And that actually -- so now what this is telling us, based on those levels, and the additional levels of nitrogen and chlorophyll, that this is classifying the lakes listed as eutrophic?

MR. SWANSON: That's right, based on -- well, it is categorized using different parameters, so it is between mesotrophic and eutrophic, median to high productivity.

MR. RAINING BIRD: So eutrophic is good?

MR. SWANSON: It is like too much of

anything is not good. I think if it is highly eutrophic, which is the concern with nutrients on Lake Winnipeg, then there are risks that come with that. The water bodies -- public perception of cool, clear water is often that that's the best, but it may be relatively unproductive, as in a lake trout lake. So the word "good" is kind of a relative one. They are on-system, it is a large prairie river essentially, or water from prairie rivers that's running through it, so they are going to be in that medium to eutrophic, medium to high productivity area. So it is not unusual, I guess, is my point. You asked if that is good.

MR. RAINING BIRD: So then eutrophic, if a lake is eutrophic, that's not necessarily a good thing? It can be bad, it can be too eutrophic?

MR. SWANSON: It can be too eutrophic, that would not be good.

MR. RAINING BIRD: And would you agree that that is especially the case, can be the case with species of boreal rivers and lakes?

MR. SWANSON: I think the nature of the water that flows through the Nelson River is such that -- and this is what I was trying to say

before, perhaps not very well -- that the nature of the water flowing through that river is that it is going to tend to that medium to high productivity because of the amount of -- the fact that it carries prairie soil and flows through prairie soils.

MR. RAINING BIRD: But my point is just that it could have -- I mean, these levels are classifying the lake as eutrophic, or a certain -- it can have a differing effect depending on the species I guess?

MR. SWANSON: Typically you will find different species in different categories of lakes.

MR. RAINING BIRD: So then, for example, would you agree that eutrophication could be having a negative effect on lake whitefish in Cross Lake, in combination of other factors such as drawdown during the spawning season?

MR. SWANSON: Yes, it is possible, but like many of the other factors I'm not sure how -- they are very difficult to separate those pieces, the level of nutrients and the amount. If it was highly eutrophic, you could tend to see that being less beneficial for --

MR. RAINING BIRD: So, again, my main point is just for someone like me, who has no idea about this stuff, if I was to look at this graph and see that it was eutrophic, and I was also concerned about say the species of whitefish, I wouldn't be correct in simply relying on the fact that the lake is eutrophic in determining the health of that species?

MR. SWANSON: I don't think so, I think it is probably the combination of things that results in the issue of whitefish on Cross Lake.

MR. RAINING BIRD: Thank you. And would you agree that lake whitefish populations have not recovered in Cross Lake, according to the CAMP program and local observation?

MR. SWANSON: Yes, that's our understanding.

MR. RAINING BIRD: And post construction of the weir, does the CAMP program have any study design that attempts to further address the poor lake fish recruitment in Cross Lake?

MR. SWANSON: Attempts to rehabilitate it or attempts to understand it?

MR. RAINING BIRD: Either or, why don't we break it into two?

MR. SWANSON: I would say that the CAMP program is designed to over time enhance our understanding. The continued sampling will allow us to compare and with increasing confidence understand what the species composition is and track any trends and changes. In terms of -- there is nothing CAMP that's specifically designed to rehabilitate. That would be a different undertaking.

MR. RAINING BIRD: Okay, thank you. And does the CAMP program intend to do any study in the upper Nelson on the combined effects of invasive aquatic species such as carp, rainbow smelt, and regulation, river regulation, so the combined effects of those two factors?

MR. SWANSON: I think the information would be useful in performing those assessments. There aren't any specific initiatives at this point to look at invasive species, to assess the effects of invasive species with CAMP data, but it would certainly be available for that.

MR. RAINING BIRD: So then you would agree that the CAMP program is essentially a

monitoring program only, and isn't designed to test, to develop studies to test hypothesis about ecosystem changes related to LWR or other stressors that may result in cumulative effects, for instance?

MR. SWANSON: Could you say that again, just so I know exactly how you phrased it?

MR. RAINING BIRD: Yeah, I'm sorry. So would you agree then that the CAMP program, as it stands, is a monitoring program only, and does not attempt to develop studies to test hypothesis about ecosystem changes related to LWR, along with other stressors that may result in cumulative effects?

MR. SWANSON: The CAMP program is a monitoring program. It is a question based monitoring program in the sense that it looks to associate ecosystem parameters with physical parameters and water level flow hydrometric information. So in a way it is designed to assist with developing the questions. That's part of the intention of the CAMP program is to monitor and understand, but also to serve as a first step in identifying issues or concerns that require more in-depth or additional effort or work or study.

MR. RAINING BIRD: So it is essentially a tool that could be used in those types of studies?

MR. SWANSON: Yeah. I think it is the start of some of those questions that lead to more work.

MR. RAINING BIRD: Are you familiar with the 1986 Cross Lake environmental assessment that was done in conjunction with, I believe, the construction of the Cross Lake weir, or prior to?

MR. SWANSON: I'm familiar with the fact that there was an assessment and some of the higher level conclusions and recommendations.

MR. RAINING BIRD: Are you aware that in that assessment, predictions were made that the weir would result in the recovery of aquatic fur bearer populations along Cross Lake and its tributaries?

MR. SWANSON: My understanding was that the stabilization of water levels was seen as logically beneficial, and the hypothesis coming from that was that it would be of benefit.

MR. RAINING BIRD: And has there been any program or study designed to test those predictions, in relation to the aquatic fur bearer

populations?

MR. SWANSON: In general, the plain language document makes reference to the sort of relative scarcity of fur bearer wildlife population abundance estimate type studies. There are studies that look more at the harvest, so more on the efficiency side from a resource harvesting perspective. As I pointed out, the difficulty with using those to determine population levels is that the market factors, the price of the fur and differences in prices in fur would have an impact on harvest. So I'm not aware of any specific studies that address the population specifically in terms of estimates of abundance.

MR. RAINING BIRD: Okay, thank you.

And then similarly in the environmental assessment, the 1986 Cross Lake environmental assessment, predictions were made that it would result in returning aquatic vegetation growth patterns to those similar to that existed before LWR. Can you just confirm, or are you aware of any programs or studies that have been designed to test those predictions?

MR. SWANSON: Again, my understanding is that the logic is in establishing or trying to

recreate water levels closer to what were natural that the vegetation patterns would go back. And I'm not aware of any studies that have specifically looked at the extent to which that has occurred.

MR. RAINING BIRD: Okay, thank you. If we could just go to page 104?

This slide relates to the presence of lake sturgeon and the impacts on lake sturgeon habitat as a result of LWR. Can you confirm that lake sturgeon in the Nelson River have been recommended by the committee on the status of endangered wildlife in Canada to be classed as endangered under the Species at Risk Act?

MR. SWANSON: I understand there is a recommendation to that effect.

MR. RAINING BIRD: Would you agree that studies on habitat impacts due to LWR, or these studies on habitat impacts due to LWR on lake sturgeon on the upper Nelson have been fairly limited given the status of these populations?

MR. SWANSON: Are you asking if there has been less study because there is not, because of that status or --

MR. RAINING BIRD: I suppose I'm

asking if given that there is a recommendation that these be classified as endangered, would you not think that there should be more studies based on that status?

MR. SWANSON: There has been a lot of study. I don't have a long list of all of the activities that have been undertaken, but I can say that the understanding and appreciation of the status of sturgeon in Manitoba is -- it has gone through some peaks and valleys in terms of concern initially, and then a better understanding of where sturgeon are in numbers. And so that, again, referencing the history and how things changed with increased knowledge, there has been a great deal of focus put on sturgeon and the establishment of sturgeon boards, community groups working collectively with regulators, and Manitoba Hydro's involvement in that, and stewardship and enhancement programs as well, including stocking, rearing of sturgeon. So there could probably always be more study, but there has been a lot of study, and considered and concentrated effort has been put to trying to understand and address as best we can.

MR. RAINING BIRD: So then you would,

I suppose, agree then that something, the comprehensive cumulative effects assessments including new field research would be valuable?

MR. SWANSON: New information would always be helpful. I think it would -- you would want to make sure, obviously, that it is considered and sort of appropriate in terms of what has already gone on and the amount of work that has happened.

MR. RAINING BIRD: Thank you. Go to the next slide, 105?

Can you confirm in terms of waterfowl, can you also confirm that there has been no study post Cross Lake weir as to the effects of the weir on waterfowl habitat?

MR. SWANSON: No. My understanding is that there are hypothesis that it would have affected, but no studies that I'm aware of specifically on Cross Lake.

MR. RAINING BIRD: Would studies of that sort be useful?

MR. SWANSON: Yeah, one of the limiting -- well, there were some studies done in the upper Nelson River area. They were more focused, I believe, on Playgreen Lake and upstream

of Jenpeg. And they did note declines in waterfowl. The difficulty is looking at a species that, or a set of species that migrate as far as they do, and that are affected by factors in other places, to look at a specific water body in the context of a big set of regional factors that affect them both positively and negatively is -- I think that was seen as difficult to do, and might be the reason why there weren't more studies to that effect. To look at the habitat would be valuable, in terms of abundance, it could vary for a variety of reasons is what I'm saying.

MR. RAINING BIRD: Okay, thank you. And then at page 106?

So I just want to go to the third bullet point here.

"Cross Lake Weir improved habitat conditions downstream of Jenpeg". I just wanted to know what evidence is there to support that statement?

MR. SWANSON: Again, it is the connection to water levels. It would have improved habitat conditions in terms of more stable water levels. I'm not -- it doesn't sort of attempt to infer what the numbers of beaver

have been, but the habitat conditions were improved.

MR. RAINING BIRD: I'm sorry, can you -- for my own understanding, can you repeat that?

MR. SWANSON: The statement says that the weir improved habitat conditions downstream of Jenpeg. By stabilizing water levels on Cross Lake, it made the habitat more suitable for beaver. Maybe this is a subtle distinction to some people, but it doesn't actually say that the beaver increased, because as we just discussed, there weren't a lot of studies on aquatic fur bearer abundance per se. But logically it would have allowed beaver to establish lodges and food caches in a more secure, stable environment, by reducing the water level fluctuations.

MR. RAINING BIRD: So it is more of a speculative statement?

MR. SWANSON: I think the statement is accurate in terms of the habitat. It is -- the inference, I suppose, would be that it should have also increased beaver abundance. That's where perhaps you are reading an inference.

MR. RAINING BIRD: Okay. So would you

agree that erratic water level fluctuations, especially drawdown and flooding in winter would almost certainly have a severe negative effect on beaver and muskrat?

MR. SWANSON: Yes, depending on how dramatic that is, it would definitely impact beaver and muskrat.

MR. RAINING BIRD: So then would you agree that to better understand the ongoing effects of LWR on aquatic fur bearers and the effectiveness of the Cross Lake wier mitigation project, that a current study of aquatic fur bearer habitat conditions over several years, as well as population studies would be useful?

MR. SWANSON: That would enhance our understanding.

MR. GAWNE: If I could add to this? With respect to the water regime and the effects of the weir, further to earlier statements that the weir has -- as you see in the water regime charts that were provided, both in the plain language document and the results of more detail requested in CEC 15 that show distribution of water levels pre and post weir and pre LWR, that the water regime on Cross Lake has certainly come

closer to what existed prior to Lake Winnipeg Regulation through the construction of the weir. So it is just helpful to look at those water regime charts. And in terms of variability in water levels, monthly changes in water levels pre LWR, subject to check, was evaluated to be about .6 feet per month. After Lake Winnipeg Regulation, those water level fluctuations increased and the weir was constructed, and the post regulation variation is now in the range of .7 feet per month, so similar to pre LWR.

MR. RAINING BIRD: Right. But I guess the main point is simply that there are no studies to actually confirm the populations, or the fact -- it is just an inference, again, that restoring conditions previous to the weir or previous to LWR would tend to lead to improved habitat conditions?

MR. GAWNE: Yes. I was adding this point just to go -- I guess to bring it way back to the initial comments that we were asked to agree that variability is, you know, can be a good thing. And the point is that the variability that we are seeing on Cross Lake is similar to what existed prior to Lake Winnipeg Regulation.

MR. RAINING BIRD: Thank you. If we go to page 107, and feel free to -- I'm not sure, just for my own --

THE CHAIRMAN: About 15 minutes.

MR. RAINING BIRD: Okay. So the presentation here states that the most obvious effects of LWR on ungulates on shoreline areas, and that would be the loss of shoreline action, reduction in browsing, or browse. Given that the most obvious effects of LWR are recognized as being effects on shoreline habitats and quality for ungulates as well as other terrestrial and riparian species, would you agree that the lack of shoreline habitat study is a major gap in ecological monitoring?

MR. SWANSON: Like I stated before, the current monitoring program is in response to the questions and the issues that have arisen over time. I wouldn't debate the value of riparian, study of riparian habitats as it relates to riparian species, both sort of aquatic and more terrestrial.

MR. RAINING BIRD: That's fine. Would you also agree that manipulating the water levels is one of most important contributors to the

development and maintenance of riparian habitats?

MR. SWANSON: Yes.

MR. RAINING BIRD: Can we go to 111?

Now, we've heard a lot about the final, the difference between the final licence, or the perceived difference between the final licence application process and the pending renewal licence application process. And I just want to confirm, is Manitoba Hydro willing to consider the necessary study required to understand the effects of mitigation measures, such as changes to the operating regime, either in terms of the period leading up to and/or including the final licence, or the renewal licence application process? Maybe that wasn't -- was that question completely unclear? I can make it more complicated.

MR. CORMIE: No, I think, Mr. Raining Bird, I understand the question. And I think this goes back to the licence, as it stands now, represents the balance that was struck in the early 1970s, and if it is desirable that a new balance be struck at the time that a renewal licence is issued. And we are trying to find out what is the best way the lake and the project can

be operated. Clearly that parameter is a significant parameter and we should study the implications of that. And there are other values, other parameters that could be studied as well. So it all has to be looked at in a comprehensive manner.

MR. RAINING BIRD: And just if I was sort of following on that, it is my understanding, and correct me if I'm wrong, that in your evidence prior you testified that in terms of the final licence application, Manitoba Hydro's expectation is that it will be status quo. Is that correct?

MR. CORMIE: Yes, that's correct.

MR. RAINING BIRD: And then I believe you also, as you were speaking about it, you also said that Manitoba Hydro welcomes, would welcome guidance, or I think you called it a road map, as far as the renewal application process would go. Is that correct?

MR. CORMIE: Yes, I said that.

MR. RAINING BIRD: And I took it from your earlier comments as well then that, if necessary, Manitoba Hydro would not object to participating in an environmental assessment process, if necessary, with regard to the renewal

application process. Is that correct?

MR. CORMIE: Yes, that's correct.

MR. RAINING BIRD: And so part of -- from past projects, is it your experience then that environmental assessment projects, or processes, the requirements in environmental assessments require a number of years possibly to adequately prepare for?

MR. CORMIE: Definitely, yes.

MR. RAINING BIRD: And so then if an environmental assessment is required in terms of the renewal process, would Manitoba Hydro benefit from essentially a longer lead time in terms of acquiring that data that would be required for any such environmental assessment?

MR. CORMIE: Yes, I would agree with that. I believe, given the time necessary to do studies and consultations, that if we left the study process to the date at which Manitoba Hydro is required to apply for a renewal licence, that may not give us sufficient time to have the Province consider a renewal licence in 2026, and that decision may get deferred to another time. But given the schedule that we know now, and knowing how long these processes take and the

amount of information and work that needs to be done, I believe this is an opportunity to start going in that direction today.

MR. RAINING BIRD: So given that answer then, would you agree that all of the studies that I've just been discussing over the course of this cross-examination would potentially be quite valuable when participating in any such environmental assessment?

MR. CORMIE: Yes. And I think the concept of laying out a road map that looks at where we want to be, where we are now, identifying gaps, and I think there are some studies going on now that will put us in the position to say there are certain gaps in our knowledge base, that those gaps can be closed and other areas can be studied so that when we get to the renewal, point of renewal, then we will have the information to make the decision on the next 50 years.

MR. RAINING BIRD: Then just conversely then, without the types of studies that we have mentioned, the type of ecological monitoring, without that, would you agree that Manitoba Hydro would be ill-prepared for any environmental assessment process?

MR. CORMIE: I think we would prepare as best we were capable of. I don't think that we would go forward without doing our best. But I think a better job can be done if everybody's expectations are aligned in the time frame, time lines laid out. And when we get to the date when a renewal licence needs to be issued, the work has been done to everyone's satisfaction, and then there are no gaps. It is not Manitoba Hydro's assumption of how it should be done, we have been directed, and then our actions are consistent with that. Not just for this project, but there are many licences that are coming up for renewal, so it would be nice to have a road map that would have a common standard.

MR. RAINING BIRD: Would you generally say, the earlier the better?

MR. CORMIE: Yes, because this takes a long time, yes.

MR. RAINING BIRD: Thank you. Can we go to page 121, please?

This might actually be a good time for a break if you want to do that then, or we can keep --

THE CHAIRMAN: Sure, we will take a

break until 10 after 3:00 o'clock.

(Recessed at 2:55 p.m. and reconvened at 3:10 p.m.)

THE CHAIRMAN: Okay, Mr. Raining Bird.

MR. RAINING BIRD: Thank you. Okay, so moving on, now we are talking about the Northern Flood Agreement. And on this slide you can say that there is much room for interpretation, and if we -- I believe, Mr. Sweeney, you were talking about this -- and that many of the claims under the Northern Flood Agreement went to arbitration.

Is it your understanding that one of the main issues as to the different, or one of the main issues in terms of conflict between Pimicikamak and Manitoba is as to the breadth of the interpretation given under the NFA? And by that, to clarify, I mean is it your understanding that Pimicikamak, or other First Nations who were previously governed by the NFA, interpreted the NFA and its terms broadly, whereas Manitoba interpreted it narrowly?

MR. SWEENY: I would say likely no.

MR. RAINING BIRD: Just to clarify your response, which part of that would you

disagree with? Would you disagree with that Pimicikamak wishes the NFA to be interpreted broadly?

MR. SWEENY: I was getting -- the point in my presentation was really related to the interpretation of some of articles in the NFA.

MR. RAINING BIRD: And at the risk of sounding simplistic, my contention, my suggestion would be that when we are dealing with interpretation of specific articles, generally speaking, Pimicikamak has advocated for a broad interpretation of those provisions, whereas Manitoba has advocated for a more narrow interpretation.

MR. SWEENY: Yes, at times. But I would say the interpretation was, interpretation by all parties was somewhat different.

MR. RAINING BIRD: Does Manitoba consider the NFA to be a Treaty?

THE CHAIRMAN: When you say Manitoba, are you referring to the Manitoba Government or Manitoba Hydro?

MR. RAINING BIRD: Sorry, I will confine that to Manitoba Hydro.

MR. SWEENY: Can you repeat that

question, please?

MR. RAINING BIRD: Does Manitoba Hydro consider the Northern Flood Agreement to be a treaty?

MR. SWEENY: I understand the Manitoba Government has made statements to it's a modern day treaty, yes.

MR. RAINING BIRD: Can we just go to 124?

This slide relates to implementation of the NFA, and I just wanted to clarify. In 1997, it says that Cross Lake First Nation decided to proceed within the specific terms of the NFA. So that was -- in other words, they rejected the approach of signing a cumulative impact agreement, correct?

MR. SWEENY: A comprehensive implementation agreement?

MR. RAINING BIRD: Comprehensive, yes.

MR. SWEENY: Yes.

MR. RAINING BIRD: So the next point down says:

"Action plans were developed to address NFA obligations."

Is it your understanding -- I just want to get

some more specifics about that. So it is my understanding that there was an action plan in 2002 that was developed mutually between the parties, Pimicikamak and Manitoba Hydro, and that that was implemented. Is that correct?

MR. SWEENY: No.

MR. RAINING BIRD: Can you explain why?

MR. SWEENY: It was a three party, jointly discussions with Manitoba Hydro, Manitoba and Cross Lake First Nation.

MR. RAINING BIRD: My mistake, that's right. But it was mutually -- the assertion is that it was mutually developed between all three parties, is that correct?

MR. SWEENY: That's my understanding, yep.

MR. RAINING BIRD: And so then in 2004/2005 -- so that the 2002 action plan was implemented and its provisions. Then, to my understanding, in 2004 and 2005 another action plan was proposed by Pimicikamak, or Cross Lake; is that correct?

MR. SWEENY: I'm not aware of that. I'm not aware, and what I'm not aware about is who

proposed what type of approach, so that we would have to go back -- but I don't know if it was Pimicikamak because I wasn't involved at the time, but the history --

MR. HUTCHISON: If I can maybe jump in a bit, I was working in the Aboriginal relations division at the time. And the issues, I do know that there were action plans developed. There were some, at times they were mutually worked on for each of the programs that would comprise the implementation. I do also know that there were times that Cross Lake First Nation or Pimicikamak proposed their own sort of programming. We are just not clear on whether that 2004/2005 time frame is one of those times. Does that --

MR. RAINING BIRD: Well, we will hear evidence later on in the hearing as to the specifics of that. For now, would you just agree that in 2004/2005, there was an action plan being developed by the parties?

MR. HUTCHISON: That sounds correct by me.

MR. RAINING BIRD: And then in 2005, it is my understanding again that the action plan process, I suppose it could be called, was

unilaterally shut down by Manitoba Hydro. Is that correct?

MR. SWEENY: I don't recall that.

MR. RAINING BIRD: Well, we will hear evidence then later that that was the case. But to your knowledge then, since that time has -- until 2014, from that point to the present, are you aware of any other action plans that have been either developed or implemented?

MR. SWEENY: Well, the action plan process continued throughout every year, so the action plan process did continue. However, the involvement of Cross Lake First Nation varied from year to year. So the action plan that was developed jointly with Cross Lake First Nation and Manitoba and Manitoba Hydro, although at some point after -- you mentioned 2006, was it, or 2005 -- Manitoba Hydro and Manitoba continued to implement the programs that were based out of that action plan. So the action plan that was jointly developed continued, although it didn't have all of the involvement of Cross Lake First Nation, for various reasons.

Further to that, Cross Lake First Nation later became engaged, later in the years in

2010 and 2011, through a different process. So there has been a number of different processes throughout the years. So, the implementation committee, for example, had Cross Lake at the table along with Manitoba Hydro looking at the various action plans. So over the years it varied with the involvement. But Manitoba Hydro always took the position that, you know, Cross Lake First Nation, we wanted them to get to the table.

MR. RAINING BIRD: So, then would a proper characterization of that evidence be that mutually developed implemented action plans ceased, as between three parties, ceased to exist in 2005?

MR. SWEENY: No, I believe that would be incorrect.

MR. RAINING BIRD: Let's go back. So 2005 was the last action plan that had involved -- as we were using the term here, which is action plan in this context, 2002, 2004, and 2005, that was the last one that had the involvement in the development and implementation of Cross Lake, is that correct?

MR. SWEENY: With the involvement of Cross Lake First Nation, that's correct. However,

like I said, in 2010 Cross Lake First Nation became more involved in the action plan process, although something a little different than in 2002, but they were involved with the implementation of the Northern Flood Agreement.

MR. RAINING BIRD: Okay. And then in terms of the last bullet point here, the process agreement that was signed on December 15, 2014, that was a direct result of the occupation of the Jenpeg dam; is that correct?

MR. SWEENY: I would -- that's what came after, yeah.

MR. RAINING BIRD: And in terms of the process agreement that came out of that, is it your understanding that that, as the title suggests, is simply a process agreement and that there are no guaranteed outcomes?

MR. SWEENY: Yes.

MR. RAINING BIRD: Can we just switch to slide 130?

In terms of the impacts to a culture, ways of life and heritage resources, you are speaking generally about these programs yesterday, and you had a list, so I don't want to get into too many specifics. But generally, how would you

judge the success of these initiatives in terms of how they address the impacts?

MR. SWEENY: Could you be more specific?

MR. RAINING BIRD: Are there formal criteria, or formal objectives that you could objectively measure the success of the programs by?

MR. SWEENY: Well, I think there is various numbers of programs. Do you want me to go into some of the programs?

MR. RAINING BIRD: Well, if you have examples of specific objectives or specific criteria by which these programs can be judged with regards to a specific program, then any examples would be appreciated.

MR. SWEENY: Okay. In relation to some of the programs, for instance, the trappers program, the trappers program is -- it was jointly reached between Manitoba Hydro and Manitoba, and the trappers association. So in that case there was a form of compensation that was paid to the trappers for impacts relating to fur bearing animals as it relates to trapping. In light of that there was a number of different programs that

were tied to the trapping program. Examples of some of the programs that were jointly developed with the trappers association, programs that they felt would be useful to enhance trapping or to continue trapping, some of them included an equipment fund, some of them included a loan, equipment loan process, some of them created a grubstake loan, so if the trappers didn't have a certain amount of dollars for that year prior to trapping, that this would allow them to get out and go trapping. A number of programs included rehabilitation and habitat for some of the fur bearing animals. So basically what that is, if a trapper wanted to apply, he would make a proposal to a trapping association, and therefore, upon approval of the trappers association, they would provide dollars to the trappers. Another thing with the trapping program, it allowed also for the local schools that teach, that have younger kids to apply through this process and to take the young kids out and have equipment to take them out. So this was another form where this program assisted.

Another thing that came with that program as well was tied also to the -- there was

a 50 per cent incremental cost based on aquatic fur. So when the trappers would go out on an annual basis, as it relates to their aquatic fur catches, they would receive 50 per cent more on the value that they received for that year. That combined with the safe ice trail program, so the safe ice trail program, this would be an interim measure where the resource users would be hired to put the trails in place, and then at the end of it, remove them. So this is just a number of programs, but this combined, the combination of all of them contributed to the overall success. And my point is there, it is getting the people that are impacted back out on the land and being able to work with some of these programs.

MR. RAINING BIRD: I appreciate that. But what I was asking is just, are there formal criteria by which these programs can be successful? You spoke generally saying, you know, these programs exist. And I'm not debating whether or not the programs are there. My simple point is whether or not there are a list of formal objective criteria by which each program can be measured, the success can be measured, other than a general statement that the people are back on

the land or they have these abilities?

MR. HUTCHISON: If I can? There weren't formal criteria that Manitoba Hydro and Cross Lake First Nation or the trappers association developed. But the mere fact that going through discussions and reaching agreement on what a program would involve, to me that should constitute that, in the case of trapping and the agreement that was reached with the trappers association, that the issues to do with trapping were resolved in a way that both parties, or all three parties were satisfied with.

MR. RAINING BIRD: Fair enough.

MR. SWEENY: And just one last piece to add to that, is the program itself also comes with an annual commitment to meet annually with the trappers. So, therefore, they receive direct feedback from the trappers themselves, or the people utilizing the programs, at which time they can either be amended in a case of such conditions. So at the ground level, that's a monitoring tool that's utilized by Manitoba Hydro and Manitoba to get direct feedback back from the people that are utilizing the programs. So to say a reference to a formal monitoring of the

program's success, well, that depends in my view on some of the people that are utilizing it as well. So that would be the formal approach that Manitoba Hydro has taken.

MR. RAINING BIRD: So then you mentioned the trappers program and the safe ice program. Are there annual reports setting out the objectives and accomplishments of either of these programs?

MR. SWEENY: In regards to the safe ice trail program, the debris program, yeah, we do have annual reports.

MR. RAINING BIRD: And the trappers program?

MR. SWEENY: The trappers program itself, we would have some reports on what was received as far as the types of things that went out, and the type of program that was utilized. So there would be some sort of a report based on that.

MR. RAINING BIRD: Okay, thank you. Can we go to 136?

So the lake sturgeon stewardship and enhancement program, can you just let us know, or let me know what habitat enhancement is being done

in the upper Nelson for lake sturgeon? For example, spawning habitat rehabilitation?

MR. SWANSON: You are looking for examples in the LWR area or just --

MR. RAINING BIRD: The upper Nelson?

MR. SWANSON: I think what I am aware of is there has been some stocking of sturgeon in the existing habitat. I know in the east side channel there has been some stocking there, and it is showing signs of beneficial survival. I'm not sure there has been enough time for sturgeon to grow old enough to actually spawn from that. I'm not aware of any specific habitat programs. There is the sturgeon board activities as well, which were primarily the community and the province, I think, and more targeted at conservation as well as the sturgeon hatchery stocking work.

MR. RAINING BIRD: But stocking is essentially what is going on, not actual habitat rehabilitation?

MR. SWANSON: Yeah, it is primarily stocking, which is not a Hydro role, but in association with that is the management of harvest working with the community, the province working with the community, so the combination of that and

stocking, there is -- to my knowledge there is no specific habitat works.

MR. RAINING BIRD: Thank you. If we can just go to 138, slide 138?

MR. SWANSON: Sorry, can I just add to that?

I think part of the reason for that is the fact that sturgeon populations were quite low to start with, the habitat wasn't a limiting factor. While there has been changes associated with regulation that affects sort of the carrying limit of sturgeon, the commercial harvest levels in the past had knocked the population levels down so low that rehabilitating numbers through stocking was seen as more appropriate, or more valuable, more efficient than dealing with habitat. Habitat just wasn't limiting because of the low abundances.

MR. RAINING BIRD: Okay, thank you.

So under the NFA, one of the provisions of that agreement is that reserve land taken is to be compensated with replacement land at a ratio of 4 to 1. That's acres, is that correct?

MR. SWEENY: Yes.

MR. RAINING BIRD: And has Cross Lake received its land under -- its land entitlement under the NFA?

MR. SWEENY: No.

MR. RAINING BIRD: Page 139.

Now we are talking a little bit about shoreline erosion and shoreline protection here. Can you just confirm what we are looking at, where these pictures were taken?

MR. SWEENY: The picture to your left is Red Rock and Sipiwesk Lake. And I'm not too sure about where the picture to your right was taken.

MR. RAINING BIRD: Does that sound -- the community of Cross Lake, is that correct?

MR. SWEENY: It doesn't look like it.

MR. RAINING BIRD: In any event, I don't think that you can really see on the left, but what is that called? Is that riprap, or what is that wire shoreline protection?

MR. SWEENY: Gabion basket.

MR. RAINING BIRD: Okay, so gabion basket. That's essentially you -- I'm just going by -- can you explain what the process is for doing that?

MR. GAWNE: As far as placement of those, I can't offer how exactly they are to be placed, but essentially it is a mesh, a wire mesh galvanized basket with rock in it. That's the extent of it.

MR. RAINING BIRD: How long, do you know how long that takes?

MR. GAWNE: To actually place those rocks or to place the gabions?

MR. RAINING BIRD: Yes, to do what was done in the left photo there, how long approximately would that take?

MR. GAWNE: I couldn't answer that, sorry.

MR. RAINING BIRD: Does anyone in the back know?

MR. HUTCHISON: Actually, I believe this particular work, because there weren't a lot of -- those are called field stones, they weren't right in that island area or peninsula, so they had to be brought in. So it did take a fair bit of work to haul rocks in boats, bring it over to the site. I can't tell you how long this particular work took, but from what I understand it was a pretty major undertaking.

MR. RAINING BIRD: Thank you. And when you are looking at something like that, is that done with habitat biodiversity or esthetics in mind?

MR. SWEENY: The rocks would be local, however, I think I know where you are going in your point with this. This was done in the earlier years, and we have heard from Cross Lake First Nation and some of the elders, with this specific site, that the esthetics of it wasn't consistent with what traditionally -- or not traditionally, but how they liked it. So this is a later picture, but some other, another area showed -- like we changed the process after these rocks were put in, in this gabion basket. And I understand there was another -- some additional measures that were taken to try and address the esthetics parts of it. So one of the new pictures that we have is some of the -- so when the rocks are collected locally, they usually involve the involvement of the local people from the area. So this would have been covered up, this was the picture itself, there is another picture that would show that it is actually covered up a little bit better than that.

MR. RAINING BIRD: Thank you.

And in terms of the riparian habitat, would you agree that this would not be the most conducive or most beneficial to preserve a riparian habitat?

MR. SWANSON: I guess you are saying it is not ideal, and I think that's probably agreed. The methods are typically used to try and stop the erosion process, to arrest it so that there isn't more damage. It is not always, it is not always a bad thing from a biodiversity perspective if the shorelines are typically softer materials and you have -- as long as it is not like a continuous, if you add some rock in there, it actually brings some habitat diversity and can increase diversity with the spaces between the rocks providing room for more and different kinds of bugs. So it is not all bad, but I think the goal, the objective is to protect what is there and that's --

MR. RAINING BIRD: So, of course, that would have been explained and done in conjunction with the community members, that decision to proceed in that manner?

MR. SWANSON: Yeah. I don't recall

the specific time of this work itself.

MR. RAINING BIRD: But generally speaking, you would expect that any decision of this nature would be done in conjunction with community members; is that correct?

MR. SWEENY: Oh, for sure. For sure there is no doubt that any time it involves a burial site of that nature, it would definitely be in conjunction with the community. One of the priorities, when we do find a site, is to consult with the community and elders. And the first priority when it is identified is to protect the site. So we protect the site, and then more work is done to expand on that protection. But it would always be in conjunction with the First Nation community, definitely, in this case Cross Lake.

MR. RAINING BIRD: Thank you.

MR. SWEENY: Can I just elaborate? Are you going to be moving on to another topic?

MR. RAINING BIRD: Yeah, I'm going to be moving on so...

MR. SWEENY: Okay. I just want to clarify if you asked -- it was back to the reserve land transfers, did you ask me the question if all

land has been transferred, or was your question specific to was there any land transferred?

MR. RAINING BIRD: The question was, had they received their entitlement under the NFA?

MR. SWEENY: So, yeah, my answer was no. But I do know there was some work and some parcels were transferred, but not all of the land was transferred. I just wanted to clarify that.

MR. RAINING BIRD: Okay, thank you.

In terms of pages, slides 141, 143 and 146, just briefly, these deal with more specific programs, I believe the safe ice program, waterways management programming, and then a training program for Aboriginal youth and jobs related to LWR. And my question is just, are there comprehensive reports for all of these programs detailing the success and the achievements?

MR. SWEENY: So, in relation to your question regarding the safe ice trail program, there is an annual report. In relation to your question, has it pertained to communications, we do provide the monthly water level forecasts and any advisories as that pertains, whether there is some reportings on that. And in relation to your

question on the slide employment training and business opportunities, yes, there is reporting on that as well.

MR. RAINING BIRD: Thank you. If we go to 160?

Now, would it be correct to say that it is generally accepted that the Lake Winnipeg drainage basin will get wetter in response to climate change? Is that a correct statement?

MR. HUTCHISON: Yes. I guess our climate change analysis does indicate that the Lake Winnipeg watershed is expected to get wetter with higher temperatures and more precipitation, inflows.

MR. RAINING BIRD: So if it gets wetter, does that mean the inflows, there will be more downstream flooding as a result of wetter conditions?

MR. HUTCHISON: What we have tried to demonstrate as well as the inter-annual variability in water flows right now is quite extreme. So you have low water levels, high water levels, climate change, scenarios that we have looked at suggest that there will be increases, but it will be small in relation to these

inter-annual variations.

MR. RAINING BIRD: Did you want to say something?

MR. GAWNE: Yes. I think it might be helpful to add that there is other effects in addition to, I believe there will be other effects in addition to changes to inflows, such as the duration of the ice cover season and ice acting on the outlets of Lake Winnipeg, or on the outlet of Cross Lake will be potentially affected by climate change as well.

MR. RAINING BIRD: So just to clarify then, at a general level, a broader level, would you agree that wetter, a wetter year results in more downstream flooding generally?

MR. GAWNE: Certainly if the average inflows to Lake Winnipeg are higher, then the average water levels downstream will be higher. Whether, you know, the inter-annual variability that we've seen in 2005/06 or 2011, those extreme flooding conditions, you know, those are when you see the real extra dramatic flooding conditions downstream and on Lake Winnipeg. So what we said earlier is that we expected that variability will kind of overshadow a progressive or a more slower

increase in water supply to Lake Winnipeg. So to the extent that there is flood inflows into Lake Winnipeg, there will be flooding downstream.

MR. RAINING BIRD: And so then following from that, higher inflows equal higher potential for power production?

MR. GAWNE: Not necessarily. But, you know, if on average water supply conditions are higher, then, you know, it follows that on average hydraulic generation could potentially be higher. But when we are talking about floods, as I was explaining yesterday, and we are into that flood range, Lake Winnipeg is above 715 and we are releasing maximum discharge out of Lake Winnipeg, that amount of water going down the Nelson River exceeds the capability of the generating stations to actually use that water in generation. So what we are talking about is increased spillage of water through those generating stations. So there is not infinite capability to use the water.

MR. RAINING BIRD: I understand. So absent the spillage, and the spillage to my understanding occurs when you are at maximum outflow and the power generators can't take in all of the flow, right, essentially?

MR. GAWNE: Yep.

MR. RAINING BIRD: But absent that on a more general level, the wetter, the wetter the year the longer the influence on average, the more power production is possible?

MR. GAWNE: Yes, on average. If the severe floods are more severe though, you won't necessarily get more generation.

MR. RAINING BIRD: You lose the spillage?

MR. GAWNE: Yep.

MR. RAINING BIRD: Okay, thank you. If you go to 195.

Now, again, we are back to this balance question. So when we were discussing earlier in terms of a balance, I think you've stated, Mr. Cormie, that the balance at the time of the project, they had to strike a balance. That's correct?

MR. CORMIE: Yes.

MR. RAINING BIRD: And again to keep going back to this, but we were talking earlier and you stated that in terms of applying for renewal of the licence, at that point we would need to strike -- come up with a modern balance.

And as part of that I think you agreed that a road map or guidance would be beneficial. Is that correct?

MR. CORMIE: Yes, I agreed to that because it is hard to make a modern balance without having all of the information. And the road map involves identifying the issues that are still contentious, the new problems that we are facing, collecting the information around that, getting input to that process, and so that when government makes the decision in the future about how the licence will be renewed and on what terms, that information is available so that public policy decisions can be made.

And, you know, Manitoba Hydro would like to go into that process with being able to provide that. Being the applicant for the renewal licence, the onus is on us to bring forward a case that we don't want to fail in that process, we want to be successful, and I don't think that anybody wants to be surprised by the outcome. So I think a road map to help us get to where we would like to go, and with government involvement, would be very helpful to the utility.

MR. RAINING BIRD: So then in that

sense would you agree that Manitoba Hydro has been operating under a different road map for the last 40 years?

I should clarify that. It has been operating under -- and I will start over. If when we are talking about what you deem a road map is guidance from Manitoba, the government, then in that sense would you agree that Manitoba Hydro has been operating on a road map up to this point, and that the main, you know, identifiers are those -- are the licence, it has been operating on a road map that's determined by the conditions listed in the licence?

MR. CORMIE: When it comes to new projects the requirements are quite clear. The legislation is there. The standards are well known. And we can go into a process like we have just gone through with Keeyask having met or exceeded those requirements. We are now getting into the time period where we are approaching renewal for major initiatives like Lake Winnipeg Regulation, and I think it would be presumptuous to assume that renewal is a fait accompli, that would be like having a permanent licence, and I think renewal may be more than that. It is making

sure that there is -- that the project is still in the public interest in all of its aspects.

MR. RAINING BIRD: Okay, I understand, but would you agree that to the extent that we can talk about a road map as being a function of government guidance toward -- to Manitoba Hydro as to how it is to operate, then in that sense the road map that Manitoba Hydro has been following up to this point has been determined by the conditions on its interim licence?

MR. CORMIE: Yes, to date we have been operating under the licence, we have been abiding by that. And that's the basis of our actions with regard to this project. But although the licence has been relatively stable and the world around us is evolving and we are learning new things, our social licence to continue to operate as if we were still back in the 1970s is changing, the standards are changing, and I think this is a great opportunity to review all of that. And I think that's what is contemplated when it comes to renewal.

MR. RAINING BIRD: As you stated, Manitoba Hydro would consider it beneficial to, in the form of further guidance and in terms of

potentially preparing for licence renewal, Manitoba Hydro would find it valuable to engage in the types of studies that we have discussed here today, and those would be monitoring, you know, the effects on riparian habitat, things like that, all of that would be valuable information for Manitoba Hydro in engaging in this road, in this map on this road to the possible renewal of a licence?

MR. CORMIE: I believe that it is clear when you come to specific areas there are gaps in our knowledge. And I think rather than just dealing with those gaps and concerns on an ad hoc basis and hoping that that is sufficient to get us through the renewal process, that a broader perspective is looked at, and that there is a process laid out so that to the extent that there are gaps, and we talked about some of those today, that we get enough information so that when renewal comes up we've addressed those issues. We have enough information that the government can provide Manitoba Hydro a renewal licence that's appropriate, given the state of knowledge. It is not going to be possible to do an environmental impact statement on the project because it is not

a new project. We don't have the base line data, but there are identified gaps in our knowledge, and I think we have time now before we get to the renewal date to try and close those gaps. And so that when we do re-licence, to the extent that the licence has to reflect any change that's required to help make things better, we are in a position to provide that information and have government grant us a licence, having considered all of the issues.

MR. RAINING BIRD: So then if you agree that up until this point licence conditions have been -- has served as the primary form of guidance for how Manitoba Hydro has operated, and if you agree that more guidance in the form of what studies, impacts, assessments would be necessary going forward, up until the point of renewal or possible renewal, then would not Manitoba Hydro welcome, or at least not oppose, additional terms and conditions on the current licence that may require such studies to be undertaken?

MR. CORMIE: Well, I think the studies are ongoing regardless of whether it says they are required in the licence. The licence isn't the

only guiding document for Manitoba Hydro's activities, we have the Northern Flood Agreement, we have our relationship with every stakeholder. That interaction and that dialogue is shaping the work that gets done. And so the licence is only one aspect. It doesn't address the whole thing, it just says from the Water Power Act perspective this is what you have to do. And there is a bunch of other -- there are other areas that are addressed through our requirements and our relationships, and we can't just look to the Water Power Act licence to provide all of that guidance.

So I think, you know, we have talked about these ongoing discussions between the communities and Manitoba Hydro. Clearly that puts the issues on the table. The outcome of those discussions will help shape the studies that might need to be done so that additional issues are addressed. And that's happening in spite of what the Water Power Act licence says.

MR. RAINING BIRD: But you would agree that one manner of providing that guidance would be through additional conditions, that would be a way of providing guidance as we just discussed it, wouldn't it?

MR. CORMIE: It could be a way of doing that. My thoughts today are that it is premature to jump to conditions because I don't know that we understand the implications of changing the licence. One of the sensitivities that we have done is to look at going to 714 instead of 715. There is a sense that that would help the flooding issue on Lake Winnipeg. I think that's -- it is premature to say that's how the lake should be regulated from now on. I don't think now is the time to make those changes to the licence. The review process and the renewal process is an opportunity to look at it on a comprehensive basis, and then create a renewal licence that represents a new balance, knowing that there is many stakeholders that have an interest in the regulation, not just a single stakeholder.

And so I'm suggesting at this time, and as a result of this process, to say the licence needs to be revised or it needs to have new conditions is premature. I am not saying that the licence eventually could have different terms and conditions, that might be the outcome of the renewal process, but I don't think today, I don't

think that we have enough information to suggest that a licence change now has fully understood all of the implications for every stakeholder. We are at that point where we can say this is the right thing to do and strike a new balance as a result of this process.

MR. RAINING BIRD: Thank you. Those are all of my questions.

THE CHAIRMAN: Thank you, Mr. Raining Bird. Now we have three more groups, or two more groups and one individual to cross-examine. Keewatinook Fishers and Peguis First Nation, and one member of the public and additionally this panel. Now we certainly won't get through all three of those this afternoon. This panel will be back next Wednesday and possibly Thursday, if necessary. If any of those three groups can guarantee me that their questions will last 15 minutes or less, I will do it today. If not, we will wait until Wednesday. Ms. Whelan Enns.

MS. WHELAN ENNS: Mr. Chair, I was asked to pose the questions for the Keewatinook Fishers, but I think it is preferable for their expert to do that on Wednesday.

THE CHAIRMAN: Thank you.

MS. WHELAN ENNS: May I ask, does that mean top of the morning or -- I would like to relay to Dr. Ballard when that's likely to be.

THE CHAIRMAN: I think if you consult with Commission secretary after we adjourn she can help you in that regard.

MS. WHELAN ENNS: Thank you very much.

THE CHAIRMAN: Mr. Stevenson, will you be brief?

MR. STEVENSON: Very brief.

THE CHAIRMAN: Come forward then. Just introduce yourself for the record and then proceed.

MR. STEVENSON: Good afternoon, Mr. Chair, my name is Lloyd Stevenson, I'm here on behalf of Peguis First Nation. Most of the questions have been asked that we want to talk about, but we do have a few questions that we need to get clarified. So I will be asking the panel general, not particular to one individual, but certainly the panel as a group.

I want to refer to the Netley-Libau marsh located near the mouth of the Red River. In your comments earlier this morning you've indicated that Netley Marsh should be

re-considered and perhaps put back on the table, is that correct, in your questions to the Consumers Association?

MR. HUTCHISON: Can you clarify what that means, by put back on the table?

MR. STEVENSON: I think he asked if there was enough work done on the Netley Marsh Libau area and I think you said we might have to look at doing further work in that area.

MR. HUTCHISON: I believe that what I said is we supported the Lake Winnipeg Foundation which is looking to work with all marsh stakeholders, including Peguis from what I understand, on what marsh rehabilitation options would be going forward to work with the stakeholder group, and this group does involve many scientists, Dr. Goldsborough amongst them, as well as other stakeholders.

MR. STEVENSON: Looking at the -- well you call the Netley marsh, Netley being on the west side of the river, and Libau marsh on the east side, is that how you categorize it?

MR. HUTCHISON: That's how I understand it.

MR. STEVENSON: You are partly aware

of the history of Peguis in terms of where they settled at Netley back in the late 1700s, where Chief Peguis and his tribe I guess used that as the St. Peter's settlement?

MR. HUTCHISON: Yes, I had a good teacher. I understand that was yourself.

MR. STEVENSON: You are also aware that at the present time there are some pockets of reserve lands in the Netley marsh area?

MR. HUTCHISON: That's my understanding. There is a fishing station in particular.

MR. STEVENSON: Yes, that's Peguis 1A, that's located closer to Matlock, but there are also other lands near Goldeye Lake area that are currently Peguis reserve lands. Are you aware of those?

MR. HUTCHISON: I am not aware of all of the details, but I do understand that Peguis has a large interest in the area.

MR. STEVENSON: Understanding that Peguis has an interest in the area, are you aware that Peguis members have continued to exercise their Aboriginal and treaty rights, including hunting, fishing, trapping in that area?

MR. HUTCHISON: Anecdotally through what I have heard of the use of the area, as you described, yes.

MR. STEVENSON: If that is correct, has Manitoba Hydro taken any steps to protect those treaty and constitutional rights that belong to Peguis members in that area?

MR. HUTCHISON: I don't believe that we have. I'm not sure how -- how it would come upon Manitoba Hydro to be protecting treaty and Aboriginal rights on that particular area. Perhaps you can elaborate.

MR. STEVENSON: Whenever you impact a certain right, you have to make sure you try not to abrogate that right, that's basically a given for any government or departments that belong to a government.

MR. HUTCHISON: Fair enough. And I think what we have tried to demonstrate in our presentations is that Manitoba Hydro's influence to Lake Winnipeg Regulation project on Lake Winnipeg is that we've reduced the average water level and the extreme flood peaks that used to occur on the lake.

MR. STEVENSON: In your reference

material, I believe that the -- there is greater water surface in the last three years compared to I believe information provided by Mr. Goldsborough, he made reference to land surfaces between certain years?

MR. HUTCHISON: I think you are talking about the areas in the marsh, how there is more -- I think you are -- that there is more open water area?

MR. STEVENSON: That's correct.

MR. HUTCHISON: Yes, that's my understanding.

MR. STEVENSON: So, I don't know whether Manitoba Hydro has addressed this unique situation because it may have impacts on the medicines that Anishinabe people harvest in that area. Certainly when you have more water surface it takes away from certain medicines that grow near the shore and for people to collect medicines. For example, we do have a medicine called Weekis that we use for our systems, and if you have greater water surface, that would take away the natural habitat of that particular plant. So I'm just wondering if that's the case, how would Manitoba Hydro address a situation like

that?

MR. HUTCHISON: Well, what we've -- also what I tried to present is that there are I think I listed about eight or nine factors that are affecting the marsh, and the largest factor that we understand that affected this switch to more open waters in the Netley side is the Netley cut that was done in 1913 by the Federal government. So what we are looking to do is work with all of the different marsh stakeholders to see what is a way to bring back -- to restore the marsh so that it can deliver these goods and services such as medicinal plants.

MR. STEVENSON: So when you are looking at stakeholders would that include rights holders such as Peguis First Nation?

MR. HUTCHISON: We are not in charge of who is brought in, but my understanding is that the Lake Winnipeg Foundation is looking to involve all stakeholders.

MR. STEVENSON: Aren't you providing some of the funding for the foundation?

MR. HUTCHISON: That's true. And I would say that we, in my role, I have encouraged the Foundation to make sure that they do include

as many stakeholders as they can, in particular First Nations.

MR. STEVENSON: Could we put Peguis on the list then?

MR. HUTCHISON: I can definitely pass that on.

MR. STEVENSON: Thank you. We had a number of information requests that were sent through the system. I want to refer to one sent by Peguis First Nation, it is number 0030. It has to deal with the shoreline erosion and the monitoring of those lands. The answer that came back from Manitoba Hydro is that they do not monitor shoreline erosion, and that would also include Indian lands that are situated near or at the shores of Lake Winnipeg.

I find it strange that Manitoba Hydro would recognize the erosion and loss of land for communities north of 53, for example, those along the Nelson River system. You do have Northern Flood Agreements with basically five bands up there that recognized erosion and perhaps compensation for land on a ratio 4 to 1. This morning you did agree that the Jenpeg dam did create some erosion on lands along Lake Winnipeg,

I believe it was a question put by one of the participants this morning, and you did agree that there was some erosion, but you didn't say to what degree, whether it was 10 per cent, 20 per cent or whatever, you just said some. So I guess we will accept some as being, you know, we don't have an exact number.

MR. HUTCHISON: Sorry, Mr. Stevenson, I don't believe we did say there was any erosion on Lake Winnipeg. I appreciate there is 2-mile channel and there would be erosion associated with that, but I don't believe we talked about --

MR. STEVENSON: The question was general, did Jenpeg contribute to any erosion, and you said it was minor. I think that was your response. You didn't say whether it was 2-mile or 8-mile or Ominawin or whatever. I understand --

THE CHAIRMAN: Can we review the transcripts over the next few days and come back to it on Wednesday?

MR. STEVENSON: Sure. I guess my question is if in fact it did include lands around Lake Winnipeg, I'm just wondering whether Manitoba Hydro is aware that there is certain reserve lands that might be affected through erosion, whether it

is caused by the Jenpeg dam or not, and I think that has to be recognized in terms of when the dam was built. You just can't look at the impacts on the Nelson River, but also the impacts that are part of the what we call the reservoir, which is Lake Winnipeg, and which is part and parcel of the same system, it is just that it is a little bit further south and close to the -- where the dam is located.

MR. HUTCHISON: Is that a question or --

MR. STEVENSON: Yeah, we want to look at the impacts I guess not just on the river system itself, the Nelson River, but certainly the impacts at the reservoir level. You know, Lake Winnipeg has been turned into a reservoir and as such the implications of a reservoir indicate to us that certain levels -- the levels of the reservoir would be elevated to maintain the energy requirements at Jenpeg. And whenever you have elevated water levels, what do the water levels do to the shoreline and to lands that abut Lake Winnipeg or the reservoir? I'm just wondering whether Manitoba Hydro has considered those impacts?

MR. HUTCHISON: I think I would like to comment on the use of the word reservoir. Lake Winnipeg is a natural reservoir. Actually in our Lake Winnipeg Regulation document we actually include a quote from Dr. Al Kristofferson, where he said that Lake Winnipeg is not a typical reservoir, it is not like Lake Mead on the Colorado River which impounded a huge river by several hundred feet. And he also goes on say to say there is times when Lake Winnipeg is actually not a reservoir at all. Any time we get over elevation 715, we are at maximum discharge, we are actually removing water from the lake that would have been there naturally. So it is not a typical reservoir.

And to get back to your question on erosion, because of the flood relief benefits that are associated with Lake Winnipeg Regulation project, we can demonstrate that we keep the average water level lower, especially in this wet period and the flood peaks lower. Our understanding is that maximum erosion occurs with a combination of high water levels and high winds, and so to the degree that we have kept water levels lower, we should be having beneficial

impacts at reducing erosion, and we have no reason to believe that erosion rates have increased since LWR came along. That's the whole basis behind why we haven't done erosion studies or erosion monitoring on the lake.

MR. STEVENSON: That's fine. I'm sure there is some fishers who make a living on Lake Winnipeg would probably say otherwise in terms of their observations because, you know, they are part -- they are on Lake Winnipeg just about every day, that's their livelihood. And usually when you, like a farmer on his land, you notice how the land is when you farm, and when you fish out of Lake Winnipeg you notice the differences that happen where you make your living, especially for the fishermen.

But I guess we will probably present something in terms of the observation of the fishermen that happen on Lake Winnipeg itself.

I want to get back to information requests by Peguis First Nation, it is 0035. It has to deal with the agreements that Manitoba Hydro spoke of. And I imagine those agreements are relative to the communities that are on the Nelson River system, because in looking at those,

at the information that you have presented, I really couldn't find any reference to any agreements for communities on the Lake Winnipeg basin, along the shores of Lake Winnipeg. And if there is, could you give me an example of any agreements, other than Grand Rapids, which they have their unique agreement based on the Grand Rapids dam, but other communities say on the east side or west side of Lake Winnipeg, if any, do exist?

MR. HUTCHISON: That's absolutely correct, we do not have any agreements with any communities on Lake Winnipeg, other than those that would be like Grand Rapids for the Saskatchewan River or Sagkeeng, for instance, on the Winnipeg River, but nothing related to Lake Winnipeg and our operation of Lake Winnipeg Regulation.

MR. STEVENSON: So you are saying there is one for Sagkeeng or there is one being developed?

MR. HUTCHISON: You are absolutely correct, there is one being developed, discussed.

MR. STEVENSON: If you were to consider an agreement for the communities along

the north and south basin of Lake Winnipeg, would you look at a similar agreement that you have for the NFA, for example, the 4 to 1 ratio for loss of land, that is just one thing to consider?

MR. HUTCHISON: Sorry, the question is would we consider doing an agreement, like a 4 to 1 land exchange provision in the NFA for communities on Lake Winnipeg, is that it?

MR. STEVENSON: Yes.

MR. HUTCHISON: We would not, because we look at the influence that we have got on Lake Winnipeg, and there is no basis to look at compensation if we are not having a negative effect. Downstream of Lake Winnipeg, we know we have got adverse effects that do affect erosion, loss of lands, therefore, we have entered into arrangements to address that effect that we agree with.

MR. STEVENSON: I guess for the north you do recognize that there is a need for compensation or some kind of agreement to deal with those communities, but at this point in time you are not convinced that there needs to be an agreement for the southern communities, is that correct?

MR. HUTCHISON: That's correct.

MR. STEVENSON: Okay. In your response to the Consumers Association this morning, you agreed that ATK would be a valuable component to be a part of the overall operation of the Lake Winnipeg Regulation; is that correct?

MR. HUTCHISON: I believe we said ATK can provide valuable information on Lake Winnipeg. Like, if you look at downstream where we acknowledge that we have got adverse effects, we have entered into studies, particularly with our new developments, because we recognize that the ATK can add a lot of value to understanding how to address adverse effects.

MR. STEVENSON: Okay. How do you see ATK being brought into the overall plan, especially for the Anishinabe around Lake Winnipeg?

MR. HUTCHISON: It is difficult for me to understand how it would be brought into the overall plan, but I do know in my discussions with First Nations around the lake that there was a wealth of information on how people use the lands and the water. There are a lot of effects on Lake Winnipeg right now, and I think that that

information would be useful in trying to -- for the people and stakeholders that are looking at trying to improve the health of the lake. There are also -- I believe there is over 30 Aboriginal communities around the lake, so I think one of the issues would likely be in trying to figure out how to get all of that information together.

THE CHAIRMAN: Mr. Stevenson, we have to adjourn now. You are welcome to come back on Wednesday and continue your cross-examination.

MR. STEVENSON: Okay, that's fine. I had two questions left.

THE CHAIRMAN: Are they short snappers?

MR. STEVENSON: Yeah.

THE CHAIRMAN: Go for it then.

MR. STEVENSON: In IR 104 by Peguis First Nation dealing with fishers, Manitoba Hydro indicated they had sampling of fish at three locations on Lake Winnipeg. I'm just wondering if you could indicate exactly where those three locations are?

MR. SWANSON: The question, as I recall, and the answer related to CAMP sampling which was in the north basin of Lake Winnipeg,

there would be a location on the west side of the lake towards Grand Rapids, and then another spot, another location over on towards Mossy Bay by Norway House, and then there was fish sampling as well that was included. It wasn't the full suite of CAMP protocols down towards the mouth of Dauphin River, Sturgeon Bay.

MR. STEVENSON: Okay. Thank you. Another IR dealing with Peguis First Nation is 119 dealing with ice thickness. Manitoba Hydro indicated that ice thickness was not considered. I'm just wondering why it wasn't, because ice and water are part of the same H2O, one is liquid, one is a solid. And if thickness is not considered, how do you measure the height of the water if ice is not used? Is it just below the ice, or is it above the ice? I'm not sure. That was kind of confusing.

MR. GAWNE: Yeah, in terms of the water content in the ice, as the ice is floating on the water it will impact essentially the pressure in the water, and we will be measuring that through all periods of the winter. So to the extent that there is snow and ice on the lake, we are measuring that, but we are not necessarily

concerned specifically with the thickness of the ice on Lake Winnipeg. As Mr. Cormie I believe had explained earlier, certainly we are monitoring the ice conditions at the outlet of Lake Winnipeg and how that's affecting the discharge from Lake Winnipeg.

MR. STEVENSON: So rather than thickness you are looking at weight then of it?

MR. GAWNE: It is a water pressure based measurement. You know, there is various technology that is used to measure water level in a lake. The Water Survey of Canada gauges I believe have pressure sensors that will basically determine what the level of the water is. And much like if you had a glass of water and you put some ice in it, it would measure the level of the water surface.

MR. STEVENSON: Okay. One final question. You've indicated there was a sampling of fish at Sturgeon Bay area, near Dauphin River area, would that be part of the CAMP program?

MR. SWANSON: Yes, it is one of the spots where I believe it is Manitoba Conservation sampling that is done according to the CAMP protocol.

MR. STEVENSON: Okay. Those are my questions. Thank you.

THE CHAIRMAN: Thank you. Thank you, Mr. Stevenson. That brings us to the end of week one in Winnipeg. We meet again Monday morning at 9:30 at the Fort Garry Hotel, not here. We are on the seventh floor of the Fort Garry Hotel on Monday. And on Monday and Tuesday next week we will be presenting the expert witnesses that the Commission has, the Commission has commissioned to make presentations. You have all received written copies of those presentations. They will be presented on Monday and Tuesday, and there will be opportunities to cross-examine those witnesses. I think that's it. There is nothing --

MS. JOHNSON: There is a couple of documents that were referenced in last evening's presentations, so I just thought I better put them on the record for everyone. They are the Save the Lake Winnipeg Project letter that was provided during the scoping meeting, and that will be WPG number 10, as well as the submission from Manitoba Association of Cottage Owners as of May 28, that will be WPG 11. And just to make sure we are on the record, the material handed out by CAC this

morning will be CAC number 1.

(EXHIBIT WPG 10: Save the Lake Winnipeg Project letter that was provided during the scoping meeting)

(EXHIBIT WPG 11: Submission from Manitoba Association of Cottage Owners as of May 28)

(EXHIBIT CAC 1: Material handed out by CAC)

THE CHAIRMAN: Thank you. Anybody else have any pressing business? We are adjourned. See you Monday morning.

(Concluded at 4:35 p.m.)

OFFICIAL EXAMINER'S CERTIFICATE

Cecelia Reid and Debra Kot, duly appointed Official Examiners in the Province of Manitoba, do hereby certify the foregoing pages are a true and correct transcript of my Stenotype notes as taken by us at the time and place hereinbefore stated to the best of our skill and ability.

Cecelia Reid

Official Examiner, Q.B.

Debra Kot

Official Examiner Q.B.