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APPEARANCES

CLEAN ENVIRONMENT COMMISSION
Terry Sargeant - Chairman
Edwin Yee - Member
Judy Bradley - Member
Jim Shaw - Member
Reg Nepinak - Member
Michael Green - Counsel to the Board
Cathy Johnson - Commission Secretary

MANITOBA CONSERVATION AND WATER STEWARDSHIP
Elise Dagdick
Bruce Webb

KEEYASK HYRDOPOWER LIMITED PARTNERSHIP
Doug Bedford - Counsel
Janet Mayor - Counsel
Sheryl Rosenberg - Counsel
Bob Roddick - Counsel
Jack London - Counsel
Vicky Cole
Shawna Pachal
Ken Adams
Chief Walter Spence
Chief Louisa Constant
Chief Betsy Kennedy
Chief Michael Garson

CONSUMERS ASSOCIATION OF CANADA
Byron Williams - Counsel
Aimee Craft - Counsel
Gloria Desorcy
Joelle Pastora Sala

MANITOBA METIS FEDERATION
Jason Madden - Counsel
Jessica Saunders - Counsel

MANITOBA WILDLANDS
Gaile Whelan Enns
Annie Eastwood

PEGUIS FIRST NATION
Lorraine Land - Counsel
Cathy Guirguis - Counsel
Lloyd Stevenson
Jared Whelan

CONCERNED FOX LAKE GRASSROOTS CITIZENS
Agnieszka Pawlowska-Mainville
Dr. Stephane McLachlan
Dr. Kulchyski
Noah Massan

PIMICIKAMAK OKIMAWIN
Kate Kempton - Counsel
Stepanie Kearns - Counsel
Darwin Paupanakis

KAWEECHIWASIHK KAY-TAY-A-TI-SUK
Roy Beardy

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Wednesday, November 27, 2013

Upon commencing at 9:30 a.m.

THE CHAIRMAN: Okay, we'll come to order. This morning we have a witness called on behalf of the Peguis First Nation. Ms. Land?

MS. LAND: Good morning, Mr. Chair, Commissioners. Thank you for the opportunity to have Mr. Flanders present some evidence to you this morning.

So Mr. Flanders, can you state your full name for the record and spell it out for the purpose of the record, and then we'll proceed.

MR. FLANDERS: Yes. My name is David Norman Flanders. D-A-V-I-D, N-O-R-M-A-N, F-L-A-N-D-E-R-S.

David Norman Flanders: Sworn.

MS. LAND: Mr. Flanders, I'm going to walk you through some questions initially to help you introduce yourself to the panel, and then I'll turn it over to you to make your presentation, and I'll follow up with some questions based on your presentation.

MR. FLANDERS: Great.

MS. LAND: Mr. Flanders, you currently teach at the University of British Columbia School

of Architecture and Landscape Architecture; is that correct.

MR. FLANDERS: Yes.

MS. LAND: What do you teach at the University of British Columbia?

MR. FLANDERS: This year I teach two courses. One is in GIS, geographic information systems, I'll be talking about that today. And the other is in 3-D modeling and design.

MS. LAND: And in addition to teaching at the University of British Columbia, you also work as a research scientist with UBC Research Institute, called "The Collaborative for Advanced Landscape Planning"; is that correct?

MR. FLANDERS: Correct.

MS. LAND: I notice that a number of your recently authored peer reviewed articles were co-authored, for example, in the Journal of Sustainability and the Journal of Flood Risk Management. Would those be co-authored with some of your colleagues from the research institute, The Collaborative?

MR. FLANDERS: Yes.

MS. LAND: In addition to teaching at UBC and working as a research scientist with the

research centre there, The Collaborative, you also founded and worked for your own consulting firm, DPI Territorial Consulting; is that correct?

MR. FLANDERS: Correct.

MS. LAND: I did notice with envy that your firm has offices in Vancouver and Guadalajara, which sounds particularly nice this morning. And DPI does environmental values planning for a variety of government bodies, NGO's and First Nations; is that correct?

MR. FLANDERS: Correct.

MS. LAND: In terms of recent projects that you have worked on, I noted that you have been involved in GIS and mapping projects or workshops for the Government of the Yukon. Is that correct?

MR. FLANDERS: Correct.

MS. LAND: I also noted that you have worked for my old employer, the Government of Nunavut for the Nunavut Impact Review Board, doing mapping?

MR. FLANDERS: Correct.

MS. LAND: And it is also true, Mr. Flanders, that you have done mapping and spatial analyses, or mapping for a number of

municipalities, including the Towns of Kuujjuaq, Kangiqsualujjuaq in Quebec, the Town of Clyde River in Nunavut, the Hamlet of Tulita in the NWT?

MR. FLANDERS: Correct.

MS. LAND: And I also noted that you worked in recent years with a number of First Nations and Innuit groups, including the Mikasew Cree in Alberta, the McLeod Lake Indian band in BC, Pinehouse First Nation in Kawacatoose in Saskatchewan, Fort Severn First Nation in Sagamok in Ontario; is that correct?

MR. FLANDERS: Correct.

MS. LAND: Would the work that you did for those First Nations and Inuit community involve mapping?

MR. FLANDERS: Yes.

MS. LAND: Closer to home, I understand that you had been doing some work for the Southern Chiefs Organization here in Manitoba, doing some mapping and spatial analysis in recent years for the Southern Chiefs organization; is that correct?

MR. FLANDERS: Correct.

MS. LAND: Great.

Mr. Flanders, I'm going to invite you

to proceed with your presentation, and then I may stop you, I'll try not to, during the flow of your presentation, but I'll probably ask you questions at the tail end. So go ahead.

MR. FLANDERS: Thanks. I'll get going with my presentation then. Maybe while it's loading up here, I'll take a moment to thank the Clean Environment Commission for supporting the study. Much appreciated. Couldn't do it without you.

So the title of this analysis is identifying shoreline changes over time in Northern Manitoba. And we're using historic and current national topographic system maps to do this work. I'll be explaining what exactly I mean by that.

So in the body of this presentation, I am going to describe what we mean by shoreline changes over time, the nature of the study. How we measure shoreline changes over time, I'll walk us through the methodology step by step. I'll walk us through the results of the analysis. And I'll round up with some conclusions and recommendations that come directly from the analysis.

I'm going to be using maps a lot in the presentation, so I thought I'd just kind of frame things with some basic maps of the region. So here we're looking at a map of Manitoba. You can see Lake Winnipeg very clearly here. This is Hudson Bay, way out here. Ontario is next door, Saskatchewan here.

And I am going to change slides now, and I'm going to describe this as zooming in. So when I say zooming in, that's what's happening. It's almost like being in an airplane, getting a little closer to the ground and zooming in closer. So we have zoomed into the northern part of Manitoba. Here is Lake Winnipeg here. You can see really clearly, this is the Nelson River system. It stretches from the northern end of Lake Winnipeg, and you can see it actually quite clearly, it extends all the way to Hudson Bay.

The Churchill River system actually is roughly parallel. It moves up here through Southern Indian Lake. It's actually hard to see. My understanding is that the flow is much reduced in that river, it is difficult to see, but it does flow up through this way and out off-screen to Hudson Bay as well. And this is the Burntwood

River which connects via the Churchill River Diversion, connects the Churchill, and the Nelson River is here.

This is a map of roughly the same area, and what it shows you is a whole spread of various kind of hydro developments. There's generating stations and control structures, there are diversion channels, dams spread across these river systems that I just described. So this is what helped form our study area. And in a moment, I'll define exactly what our study area is on the map.

So the goals of this study were to, this is a preliminary study to identify some of the changes in water body shorelines that have occurred as a result of hydroelectric developments on the Nelson River, and the connected Churchill and Burntwood Rivers over this last century. And we're showing effects over a long period of time into the past, including past and currently existing hydro projects. It's over a large region of connected water bodies based on the Clean Environment Commission's request to look at the full Nelson River system.

Further steps are needed for a full

cumulative effects assessment of inundation. This doesn't claim to be that, but it does satisfy this desire to look at a larger region and a longer period of time.

I have a few definitions to walk you through. I don't want to dwell on them too long, but they are here for your reference in the printed copies if you need them.

Inundation, I am going to be using that word a lot. Inundation, I simply mean land that's covered by water now that normally isn't, or wasn't in the past.

The term dewatering means removing the water. This is actually the definition provided in the EIS, removing the water from or draining an area behind a cofferdam so that construction activities can be undertaken. We found some dewatering as part of the analysis around Missi Falls. I'm not actually sure if there was a cofferdam there or not, but there is dewatering behind that structure. So I am using that definition provided.

I'm going to be using the terms pre-development and post-development. And these are wordy explanations, but the pre-development

just refers to a condition that exists at the time that plans for the land development of a track of land are approved, or by plan approval authority. Pre-development is a condition before development had occurred.

Post-development, I'll sort of use plain language, is a condition that refers to after some developments have occurred on a tract of land. So I can be talking about the same part of the region and refer to a pre-development condition, so for example, before there was hydro developments there, or post-development condition, since there were hydro developments installed.

A few more, significance, I'm going to be using the term significant a lot, so I just wanted to make sure I can define it before I go ahead and use it. Significant shoreline changes are those that have meaningful consequences and cannot be due to, for example, horizontal accuracy limitations, or error of the data sources used in the analysis. And I'll be talking about error and accuracy further in my presentation. Accuracy simply means how closely the mapped features represent their actual locations in reality. It's closeness of a measure to its actual or true

value.

And the national topographic system or NTS maps, many of you have maybe used NTS maps, maybe you have realized it or not. They are sort of the standard of topographic mapping. They are general purpose topographic maps of the entire Canadian land mass provided by the Federal Government. Natural Resources Canada is the distributer of NTS maps, and we were using 1:250,000 scale NTS maps in this study.

So this is a key map of the study area. You might find it helpful to refer to this map, maybe even to tear it out of your document and put it aside. What these black squares show on this map are 1:250,000 scale NTS map sheets, where these map sheets fall across Northern Manitoba. And these were the map sheets that were required then to be able to look at all of those developments that were on one of the previous maps, the developments that stretch along the Nelson, Burntwood and Churchill corridor.

You can see each NTS map sheet, each one of those black squares has kind of a horrible code such as 54D or 63P or 64G. I find it helpful to refer to a particular map sheet using that

code, you may find the same. When I say something strange like, oh, they are in 63J, I'm actually referring to map sheet 63J, and you can use this map to figure out exactly where I'm talking about.

You can see Lake Winnipeg is there at the bottom of 63G.

Again, this is maybe just for your reference. This is the full list of NTS map sheets used in the analysis. All NTS map sheets are accompanied by a code followed by a name such as 64A Split Lake.

So I would normally never put so much into a slide, this actually stretches across two slides, but what I wanted to do is provide a reference for you that shows, that collects together all of the project names, so dams, control structures, generating stations, diversion channels, et cetera. That's in that first column there. It lists them all, what type they are, when construction started, various in-service dates, when turbines were added, et cetera, total number of units, and when construction ended. So those construction start and end dates were particularly meaningful for us because we wanted to find maps that demonstrate what I refer to as

the pre-development condition. So we looked back in time and we found maps that were produced before construction started on some of these activities. So this just collects together all that information that helped us figure out which maps to use, and what was on them, and why. Each map sheet number, the publication date is also on the scale, and where the map came from is all collected for you here in table 1 on these two slides.

I have already started using this terminology. I'm going to be constantly referring to the past and the present, or historical maps and modern maps. I might say a historical paper map versus a modern GIS shape file or a modern piece of GIS data. Those are two different forms, kind of a historical form and a current modern form of the same kinds of mapping data. Typically the form that a historical map comes in, such as this one I have included from 1961, comes in a big, in paper format. Whereas what I'll refer to as a current coverage of shorelines, in our case here, refers to a -- comes in the form of a GIS, which is a geographic information system file. That's just a computer, the computer programs, the

computer mapping programs that I used to do these analyses are called GIS, and they use things called shape files. That's just the way, that's the form that modern mapping data comes in now. When I say current, it actually dates to the year 2006 is the most current dataset that we had access to, to use.

So I'll walk us through the steps in the analysis in sort of plain language. There was four basic steps, and then I'll sort of dig into each one a little bit in the coming slides.

The first thing we had to do was go and find historical maps, and map libraries at various universities and research institutions in Manitoba and UBC were visited to do this. And this is a process of going into a library, figuring out which map you need, and going into these beautiful caverns of map history, finding the NTS maps that we want.

Once we have the set of NTS maps that we want, maps that represent a pre-development condition, right, so mapping that was produced in a year that was before any kind of dams or control structures or generating stations had been built, we're finding maps that show that condition in the

study area.

We then go and scan the maps. So we just find a good flatbed scanner, scan them into a digital form, and that gives us that second image right there in the list. That's a little thumbnail of a paper historical map that we have scanned in a very high resolution flatbed scanner.

Step number 3 is called geo-referencing. We geo-reference those historical maps into a GIS. That just means we are taking those scanned historical maps that we had, and we're loading them into my computer mapping system called the GIS. That's the third step, and I'll describe how we do that. This actually is a screen capture of my GIS program, and there is the historical map that's loaded up into my GIS, along with all kinds of other GIS shaped fails. You can compare them and analyze them and see how they are different.

The last step then is, once we have our historical map loaded up into my computer and on my mapping program, then there is this program called vectorization, it sounds really horrible. All that means is we are taking all of the, if you squint you can see it -- I will actually zoom into

this on the next slides -- there's all of these light blue water bodies spread all across this scanned historical map. And what vectorizing means is we're simply tracing out the outlines of all of those historical water bodies. I'm going to use the colour pink to demonstrate that in any slide that I am talking about this. Pink is just a vectorized GIS shape file. This is now a shapefile, this is a modern format of lake shorelines, even though it represents a historical condition and it came from a historical map, vectorization creates a nice GIS shapefile. That's the modern language of mapping that lets us analyze those historic lakes. And that's what all these pink blobs are. This GIS data now that show where the shorelines used to be when that historical map was published.

So sort of crack open each one of these steps just a little bit. Finding these historical maps, so again we're looking for historical national topographic system, NTS maps that are provided by the Federal Government, that represent a point in time in the past that gives us a glimpse of what these river systems looked like before there was substantial development on

them.

Scanning them was actually, with today's technology, very simple. We used flatbed scanners. These are large flat scanners to minimize distortion, and a lid comes down on them, keeps the map nice and flat, and we scan these things in full colour at very high resolution.

Now, I'll crack open what I really mean by geo-referencing. This is quite a manual, very meticulous and careful process. I take a lot of passion into doing this very, very well.

This is one of those historical NTS map sheets. I haven't actually labelled them here. When I walk through all of the final maps, I'll always make sure to label them so you know which one I am talking about. This happens to be map sheet 54D. And the Nelson River, you can see stretches across this map sheet. The proposed Keeyask is right in the middle of map sheet 54D. This is one of those historical maps that we dug out of one of these map libraries or research institutions, scan them, and bingo, now it's a nice digital image of that historic map.

Now, I have zoomed way into one of the top corners of that historical NTS map. And

there's a lot of information here on this map. You can see these light blue water bodies. So these are the water bodies that I am always referring to. They just mean lakes, large river systems that show up as wide water bodies. There is all kinds of things here. You can see there's little red lines, these are just topography lines. And you can see there's these sort of dotted lines, and they look like little fuzzy blue mounds of vegetation. Those represent wet areas, like wetlands, not standing water but wetlands.

So there's a lot of mapped information on NTS maps, but what's of particular interest to me are all of these blue lines. This is a grid. And if you look closely, every time one of these blue lines hits the edge of the map, there's this number with an N. That N stands for north. And this number is a distance in metres from, a distance in metres north.

Similarly, along the top, you can see this blue line. It gives me a number, it gives me a number in metres east. These lines, this is a grid that simply represents the northings and eastings, if you will, for the map. Maybe more common terms, the latitude and longitude. So you

can see right here in the corner, here is good old-fashioned latitude, longitude. We are 57 degrees north, 96-degrees east. That just tells us where exactly this map is in Manitoba. It's locational information.

And the process of geo-referencing then uses all of this information. And these maps are just full of this stuff. It's really a rich rigorous dataset. You can figure out exactly where this map should be in this world using this information.

When I say this is now geo-referenced, so we have gone already and we have found the historic map, we have scanned the map in a scanner at high resolution. Now we have to geo-reference it. That's similar to sort of like using pins, to take a paper map and using pins to pin it up on the wall where it belongs. But instead here we're pinning it in its correct location in Manitoba. So all the lakes in this historic map line up, they are where they should be in Manitoba.

This process of pinning, first we take this corner at 96 degrees east and 57 degrees north, we take a pin and we pin it right on the map, right at 96 and 57. Same with the other

corner, we pin it where it belongs. Same with the other corner, we pin it where it belongs, where it belongs. In reality, we use a whole bunch of pins, not just four, and we call them control points. So we're using control points to tell this map exactly where it belongs in Manitoba. And that, in a nutshell, that's geo-referencing 101.

Once we have that then, so here I am looking at my geo-reference map, it's in my GIS, it's in my modern computer program that I can do mapping analysis with, that very last step is vectorization that gave me all of those pink blobs, those shape files that represent those historical water bodies. That's what I really need to do an analysis.

And I'll just demonstrate sort of the steps that I took to get me those pink blobs.

So here we're looking at the same map sheet, this is still 54D, this is still the Nelson River. I have actually labelled Stephens Lake here for your reference. We are all familiar with where that is. Stephens Lake actually doesn't exist yet on this map, but I think it helps to figure out exactly where we are to label it. This

is that historic map in my GIS. It is scaled, it has an appropriate scale. It's in the exact position it is supposed to be. It knows where it is in the world, it knows how big it is, it knows how big all these lakes are, how long these roads are, et cetera.

And maybe I'll just sort of go back and forth a couple of times so you can see that. This is a historic map, and if you look at all those light blue water bodies, and I'll go forward, those are all of the areas that have just turned bright pink. And all of those bright pink areas are shapes. These compose the shape file that I need, that I have extracted from those light blue water bodies. So I can compare the historic water bodies to a current map of current water bodies, right. We want apples to apples. We want a GIS shape file that show me where the water bodies used to be, and I have that right there. And we're going to compare that to a GIS shapefile that shows me where the lakes are now. And when I say now, I mean as of 2006. That was when the data set was verified for.

This dark blue, these dark blue blobs then is that. I have now introduced this current

map of current lakes. So all of the areas that are now coloured in this map, dark blue is -- this is my GIS shapefile of current, as of 2006, water bodies. So I'll just walk through that series one last time.

I started here with a geo-referenced historical map in my computer mapping program. I'll go forward. I have made a nice shapefile, a nice concise accurate shapefile of where those water bodies were historically when the map was produced. This is a GIS shapefile of where water bodies are now as of 2006. And that very last step is kind of where the magic happens, this is the difference between the two. So in this last slide, all of the areas that are dark blue, the light blue is those, is the historic map, all the areas that are now dark blue are areas that are now wet, now have standing water where there was not water in the historical map. The dark blue areas represent the difference in the water bodies between that historical map and the current map. And that's what we were after. In a nutshell, that's what we were doing with all of these historical maps, figuring out the difference between where the water bodies were, their shape

and form in history, in a pre-development condition, comparing that to where the water bodies are, and their look and form in the current condition, as of 2006.

Once you have that, it's like apples to apples, you can put the two on top of each other and you can see how they are different, see where they overlap, see where they have changed. And that is exactly what this shows actually, this shows Stephens Lake which exists now.

So now that I have introduced this current data of current water bodies, I'll just describe what this is. This is a Federal Government data source. It's distributed by Natural Resources Canada, and it's called -- they have horrible names -- it's called the CanVec GIS data. So if you hear me refer to the CanVec data set, that's the modern GIS shapefile that shows me where shorelines are now in the current.

This is available nationally. It's distributed by the Federal Government and you can download it.

There's all kind of things in that data set, all kind of things, it's just a gold mine. The pieces that you'll see elements of in

this map include hydro infrastructure, dams, dyke, levies, et cetera, settlements such as Thompson or Gillam or Grand Rapids, Indian reservations. And I was somewhat limited as to the naming and the content of that Indian reservations where it comes directly from the CanVec data set. Sometimes they are English names, sometimes they are Cree names, it's a bit of a mix. Not all of them were there. Sometimes there is too much there. There is no sort of sense of hierarchy in it, but it is what it is and it comes directly from the Federal Government in this CanVec data set -- and of course, water bodies.

That's the how we did it. And now I'll walk through the results, what that got us.

So I have all of these map sheets lined up for you in the powerpoint presentation I think you are all looking at. I'm actually going to look at the maps outside of powerpoint, so I am just going to switch. I have opened up the images outside, it's a little easier to navigate and zoom in and out of images outside of the powerpoint.

So here we are. So I'll just kind of give you a little tour of what's on these maps. Every one is titled, you can see the NTS map sheet

along the top. This one is 54D, it's the same sheet we have been looking at these last few slides. The common name is Kettle Rapids. And you will see in this case this shows a historical condition. For the remaining maps I'll only show, you will see that the title will change as such. It will say "results of analysis." For this one, I'll just show historical condition, I'll sort of start there. From here on, I'll just show results.

You'll see down in the bottom here, this is the legend, these coloured bars. When you see orange, small orange blobs, those are just lines that represent hydro infrastructure, be it generating stations, be it dams, control structures, diversion channels, et cetera. I have marked all those on the map. This is a historical condition so there's none there. I'll just go forward to the results of the analysis. For example, you can see there's some orange bars on this map, those just represent infrastructure.

There are red-ish, I'll just keep using the word blobs, red-ish blobs on the map, those represent some Indian reserves. There are also brown blobs. These are settlements. And you

can see infrastructure is always orange, labelled very clearly in black. Indian reservations are all sort of red-ish, also labelled in red-ish colour. Settlements are brown-ish and labelled in brown. I'll be zooming in and out of these maps to make it a little bit easier on the overhead to see in just a moment.

This is a scale bar, so you can always figure out kind of how big things are that we're looking at. I always have the exact same scale bar on each map, so you know this is what 50 kilometres looks like.

And the last thing I'll note is this, is that key map, that map that I suggested you'd maybe use as a reference. You might start to recognize this funny square shape. These are all of the NTS map sheets that were included in the analysis. And I have always highlighted in bright green which map we're looking at. So as we go through each map, if you lose track of kind of where we are in the study area, which one we're looking at, you can always just look down here in this key and see which one is highlighted bright green, that's where we are.

I have also dotted in, again just for

reference purposes, in dotted lines if you can see it, this is the Churchill River Diversion that stretches through the study area.

Okay. So what I'm going to do now, and I'm going to be doing this as I walk through the slides, I'm just going to be zooming in and out again, just to bring things a little bit closer, blow things up a little bit so we can see them clear.

So I'll just walk through the contents of each of these maps with you. You can see labelled are the Kettle Generating Station. This is the Long Spruce Generating Station and Limestone. And as I have alluded, all of the dark blue areas that had been highlighted on the map are areas of inundation. These are places where there's now standing water, where in that historical map in the pre-development condition there was no water. So all of these maps are going to be looking the same. All of the places where there's this rich dark blue, those are the areas of change where there's now inundation.

We had found one example of dewatering. I'll highlight that when we get there.

Here's Stephens Lake reservoir, and the Nelson River, of course, flows through this map, draining out to the right to Hudson Bay.

This is map sheet 63G, Grand Rapids, so here is Lake Winnipeg. You can see it very clearly in this map, the northern end of Lake Winnipeg is here. And the infrastructure in the map here is the Grand Rapids Generating Station. That's this orange line. I have visually tried to make it thick just to make sure you can see it. If I hadn't exaggerated somewhat, it would be an impossibly skinny line that you wouldn't see on the map. So I beefed it up so you can see this orange line of infrastructure.

Then you can see immediately upstream, stretching to the left, to the west toward Saskatchewan, on that upstream side of Grand Rapids, you can see these were all of the areas of inundation that were highlighted in our analysis along Cedar Lake. Cedar Lake continues off the map outside of the study area. This isn't the border with Saskatchewan or anything, it is still Manitoba, but that was the edge of our study area. Cedar Lake continues off that way. We have just captured the eastern portion of Cedar Lake.

Also appearing on this map in the north end of Lake Winnipeg are two diversion channels. This is the 2-mile channel here, and this is the 8-mile channel. And actually as a consequence of making these orange pieces of infrastructure large, they are actually covering up the water that is within them. But there is a strip of water, of course, that runs through the very centre of these two diversion channels.

So I've gone to the next map now. This is map sheet 63J, Wekusko. And I will zoom in. So all I have done is I've gone immediately north from Grand Rapids, you can still actually, you can just see the top end of Lake Winnipeg, so I'm just moving just a little bit north and looking up from the previous map sheet, you can see here's 8-mile channel showing up on this map sheet again. And that infrastructure includes Kiskitto dam, the Ominawin bypass channel here, and the Jenpeg dam generating station and control structure. And you can see these are immediately upstream of Cross Lake.

This is the inundation that we found on this map sheet, so starting at Jenpeg dam, at the generating station at Cross Lake, the

inundation stretches upstream, so upstream is towards Lake Winnipeg from Cross Lake. So the inundation that we found stretches from Cross Lake, all the way past upstream of the Kiskitto dam toward Playgreen Lake.

I'll move to the next slide. This is map sheet 64B. And I'll zoom in a little bit now. So you can see here, this is the Churchill River, I was describing that at the beginning of my presentation, that stretches northeast off the map and towards Hudson Bay. This is Southern Indian Lake. This is the South Bay diversion channel as part of the Churchill River Diversion, and you can see this is what then links up the Churchill River, which is here, down to the, through the Burntwood River and over to the Nelson. And this is the -- all of these dark blue areas are the areas of inundation that occurred, I'll really zoom in, that occurred as a result of the South Bay diversion channel. In fact, in many of these cases this wasn't a matter of shifting shoreline, there's actually -- there was actually no water bodies at all in many of these cases, and it was just all new water. And here is where the water bodies, there were historically water bodies.

Again, the historic water bodies always show up on all of these maps in the light blue. It's the dark blue that is the new inundation. That's the change is the dark blue. So you can always see where the historical water bodies were. That's the light blue.

I'll change slides.

I'm now looking at map sheet 63O, I'll zoom in. So this actually just continues down the line from where we were. So in the previous slide, we were just up north of where my cursor is right now, at the northern end of the diversion, stretches south through the previous map sheet and it continues on through the map sheet that we're looking at now. This is all the same, part of that same diversion.

Infrastructure here includes the Notigi Control Structure, and the Wuskwatim Generating Station is here. And you can see this is where we meet up with the Burntwood River. I will note the Wuskwatim Generating Station infrastructure is here, but since the data set that we were using to show current water bodies is dated 2006, so it's not going to show changes that result from Wuskwatim since those changes would

have occurred since 2006. But it's labelled on the map.

I'll continue. Map sheet 63P, so this is -- now we're back down to the Nelson River. This is the Nelson River that stretches up towards Kelsey and eventually to the proposed Keeyask area and towards Hudson Bay. This is Sipiwesk Lake, and you can see the inundation that we found there.

And moving up we found further inundation along the -- this is actually, this is the Burntwood River now, so we have connected down to the Burntwood, and you can see the Burntwood stretches up northeast and connects with the Nelson River, just off the map. So you can see we found inundation here upstream from the, I guess ultimately the proposed Keeyask, which is just off screen, and also on the Nelson River immediately upstream from the Kelsey Generating Station.

One thing that I'll note was that the historical map, this is actually the only case where this occurred, this historical map for where the Kelsey Generating Station is located was actually dated at the construction end date for Kelsey. So it's actually not a true indication of

a pre-development condition, the construction on the dam had already started, but that was the best we could do. I believe this was -- let's see -- actually one thing I didn't point out was the dates of all of these historic maps are always, always printed in the legend. So this map is actually 63P, which Kelsey is just outside of -- this map you can see here is dated 1930. When I flip up to the next one where Kelsey is, you'll see the date for that one.

So here we are in 64A, so you can see there's Kelsey. We have just moved immediately north from the previous map sheet, and you can see this map is from 1961, there it is, which is when construction actually finished on Kelsey, not before it began. So in that sense it seems likely that we would be actually underestimating inundation there since the dam was completed then.

And here is the Split Lake.

The proposed Keeyask is actually just off screen to the right, to the east.

I'll continue. This is 64G, this is Big Sand Lake. I'll zoom in. This was the instance where we found dewatering. I'll zoom in a little closer. The yellow here, hopefully it

shows up and for your print as well, the yellow here -- maybe I'll just zoom in so it's really clear. This was where we found dewatering. So it's kind of the opposite. This is where historically there was water, now there's not. And we are immediately down, this dewatered area is immediately downstream from Missi Falls. And conversely, I'll zoom back out, on the upstream side of Missi Falls you can see all around Southern Indian Lake and the significant inundation that we found around the lake.

Even at this scale you can sort of see, the more blue, the larger the inundation. Some of them really pop out as being larger than others.

And as we went through this map by map, we were tallying up the total area of the inundation, and that's where I'm getting to when I get to the end of the maps.

Okay. Those are the maps I wanted to walk us through.

And where that brings us then is sadly another ugly table. All those projects, all of those pieces of orange coloured infrastructure that we saw on each one of those maps, those are

all listed on the left, which map sheet they were on is still there. And those two columns on right then is where we just added up all of the inundation, all of those dark blue areas that we were capturing was quite iterative, pass by pass, closer and closer, slowly we built our confidence and just got to know all of these lake systems, these hundreds of lakes, and slowly tallied up, added up all of the inundated area. So here I have used kilometre squared and acres. And you can see the one instance for Missi Falls of dewatering.

So I have -- the way I did the accounting here was I got a total for each map sheet, rather than saying this is the total for Grand Rapids, I totaled, I got a total for map sheet 63G, which is where Grand Rapids is located. So in a case such as map sheet 54D, which houses Limestone and Kettle and Long Spruce, all three are together there. So I have reported out just one number for map sheet, and in that case 54D, even though it contains several developments. They ranged from up to 418 square kilometres for one map sheet where that South Bay diversion channel was. And in total, we found 1,350 square

kilometres of inundation, and 10 square kilometres of dewatering.

I'll continue.

So continuing through our results of the analysis, that was the maps and the total inundation, and now I'll finish by talking a little bit about accuracy and the confidence levels, kind of the nuts and bolts here of the analysis.

All maps have an inherent horizontal accuracy. So if you remember, I was defining accuracy as being how close a mapped feature such as a water body, how close its location is on the map to where it really is in reality. All maps can be slightly off. It's just the way it is, even modern top of the line maps. And so in order to calculate the total known horizontal positional accuracy, which is another way of saying what is the worst case condition, how far off could one of those water bodies be?

What you can do is just break apart all of the possible components that could contribute to that accuracy, to that error, and then add them all up, and that would be kind of the worse case scenario. If you got the worst

error for all of these pieces, add those all up, that's the worse that you could possibly, possibly have, the summation of them. So I'll just walk through them.

The first component of known horizontal positional accuracy is the hard copy historical NTS maps themselves, those old paper maps. And we had to do some real digging to find out, to get these numbers. But eventually from the map provider actually, from Natural Resources Canada, suggested that almost all of the maps, 10 of them, of 11, have a positional accuracy of up to 125 metres. So all that means is for all those old historical maps, for 10 of them, they can be up to 125 metres off. That's kind of normal stuff. For one of the maps, it was 250 metres off, up to. Could be not nearly that much as well, but worst case scenario, it could be up to 125 metres off for 10 of the 11 maps.

It's possible that distortions were introduced through the scanning of the NTS maps, when you load those old paper maps into a big flat bed scanner. You can minimize that completely by using a flatbed scanner, it pushes the map flat and you scan it. But it's possible some amount of

distortion was introduced through it. It's unknown what the number would actually be.

There is a township and range grid. Remember when I had that map up there with those blue lines, and I was showing those lines telling me latitude and longitude. In a couple of cases I used a different grid, it's called the township and range grid, and there would be an accuracy associated with that. It's unknown what that accuracy is, assumed to be small.

The geo-referencing step, so that process of taking this digitized, this scanned historic map and pinning it to its location, to its appropriate spot in Manitoba, so it's up in my computer program. As you geo-reference a map using those pins, I was calling them control points, and we use lots and lots and lots of them, my GIS program cranks out, automatically cranks out what's called the root mean squared error statistic, RMS error. It sounds horrible, but all that means is it's an indication, the root mean squared error is an indication of the quality of the control points that you have used to geo-reference the map. As I'm pinning this thing to Manitoba, we use lots of them, RMS error

simply says, how good were those control points you used, how internally consistent were they? It's not a measure of accuracy, it is a little bit different, but this is like saying, for example, if I only used four control points to geo-reference a map, one on each corner, and three of them all followed the same trajectory, moving up this way, and one of them was off, that's a bad control point, and my RMS error would increase from zero. And so we were always striving to achieve an RMS error of zero.

The CanVec water body data, so that's this modern, current as of 2006, GIS shapefile of current water bodies, that also has an inherent positional accuracy of between one and 30 metres. So that's the best we've got. That's modern stuff, and there's still some small accuracy, horizontal positional accuracy that's possible, up to 30 metres.

So you simply add all of those up. And you can consider that bottom, that punch line at the very bottom, combined known horizontal positional accuracy, that's kind of a mouthful, will range then between 126 metres to 280. So for 10 of the 11 maps, it would be 126 metres. Okay.

So, in short, what that means is for 10 of the 11 maps, those water bodies just might be up to 126 metres off, right on the maps. And there's really nothing you can do about that. But now I'll show you the ramifications and how we dealt with that in the analysis to ensure that any changes we were finding were not due to that positional accuracy of the water bodies, and they are in fact significant. Meaning they are meaningful changes, they are not just due to horizontal positional accuracy, but because there really was inundation happening there. That's how we use this information to go forward.

MR. SHAW: How were historical maps actually made? Do they send out survey teams? They've got a lot of detail.

MR. FLANDERS: It is fascinating actually. I have a passion for these historical maps, I have looked at ones from the same series and even earlier, and they literally sent -- they actually did -- it's a combination of two things. By the sort of '60s, '70s, '80s, the horizontal positional accuracy that we got for our historical NTS maps actually dates to the '80s even though the maps, most of them are from the '60s, that was

the best we had. But it's a combination of aerial reconnaissance, so they actually flew planes -- they are all sort of post war so they were doing this with airplanes, scanning the ground with photographs and interrupting them to find water bodies, and then verifying those with fueled surveying teams that would go out, classic, in the bush with their sites, and they would go out and verify these things. So all of these maps were a combination of these things.

MR. SHAW: Thank you very much.

MR. FLANDERS: You are very welcome.

These NTS map sheets, these historical maps do an incredible job of accounting for that. You can actually go to the very bottom fine print of each map and read exactly these details, when it was published, if it was surveyed, when the aerial, the flights were flown, all that stuff. It's all there.

Okay. So stemming from that discussion of accuracy, I wanted to talk about confidence, confidence levels in the results.

This is a bit wordy, I'll just walk you through it. There is a series of criteria that we use to ensure significant findings. So

we're trying to measure change, we want to make sure this is real change as a result of real inundation on the ground or dewatering, and not change that just happens because sometimes there's horizontal accuracy issues, and that historical water body might just not perfectly line up with the coverage of current water bodies that we have just because of these positional accuracy challenges that I was describing that all maps have.

So, as I was going through the analysis and picking out those dark blue areas of inundation, or the dewatering, I was always cross-referencing back to these criteria. This is our quality control. Identified areas of inundation and dewatering had to be the result of horizontal shoreline shifts of greater than 126 metres for 10 of the 11 maps, or in the case of that one map, greater than 280 metres. Right. So we were looking for changes that were beyond that worst case scenario error, that positional shift. We want real -- we don't want any of these changes to be potentially the result of accuracy problems with maps.

Identified areas of inundation and

dewatering that are a result of horizontal shifts to shorelines of 126 to 280 metres, kind of at that margin, or at our limit of horizontal positional error, are not included if they closely match the shape of the historic water shoreline, and if they show an entire water body shifting in the same direction across a large area or for multiple water bodies. A bit of a mouthful. There was two things there.

The first is that if you can imagine two lakes, the shape of my hand. If the shift we were seeing, if we were seeing a shift in shoreline like that, and this new shoreline exactly matched the old shoreline, the historical shoreline, that's a bit of a warning flag. It suggests maybe this is just an accuracy issue, it's just a shift, they didn't quite line up perfectly. That's red flag number 1.

Red flag number 2 is if all across these enormous connected water bodies, if that shift, that little shift like this between the old and the new was all across the whole lake, that's another red flag. And you put those two together, and you can assume that that's just horizontal shift problem. What we're looking for is dynamic

changes, not just the shift of a shoreline but a significant change in the water. And often, as you'll see in some of the examples, you have probably noticed already often these inundations deviate considerably from the original shoreline. So, again, these two things together are part of the quality control. No any one individual is sufficient to ensure quality control, it all has to be done together, so it's constantly going back to this list.

Secondly, identified areas of inundation and dewatering had to be part of or adjacent to contiguous, so continuous, water bodies that are connected to existing hydro developments upstream or downstream. Right. So we're finding inundation. You have to be able to draw the line to a connected piece of infrastructure. This helps to ensure the correlation between the inundation or dewatering that we're finding and hydro infrastructure.

Areas of shoreline change that are at or very close to that threshold of horizontal accuracy, so 126 metres for most of the maps, must be part of linked areas of inundation that meet all of the above criteria. It's a funny way of

saying, we're looking for context clues here. So if something is very close, or if something is a bit of, one of those red flags, we're going to start looking around at the other parts of that shoreline, other parts of the lake. And if we found other parts of the lake that truly exceed that threshold, it is really a threshold, that's an indication that something significant actually is going on here.

So, again, no any individual one of these bullet points is sufficient to ensure significance, but together it ensures rigorous quality control.

The identification of shoreline change occurred very iteratively, pass after pass after pass of filter one, round two, round three, round four, going through this. And as new information came to light, such as getting those estimates from the map provider of horizontal accuracy, once those came in, we could really know exactly the kind of accuracy we're talking about for each one of these maps. We did another pass after that. We had local residents of some of these areas suggest that they had thought there was inundation happening. And that is not enough to tell us that

there was inundation, but that does tell us where to take a second look. So there is some anecdotal evidence on inundation. So let's look really hard. And gradually, we were looking really hard in places even if there wasn't anecdotal evidence, but gradually, these are just sort of -- this is the fuel to fuel another pass, another iteration, another search, combing through to find these significant changes.

As I did this, as more information came to light, my confidence levels increased slowly, and more areas of significant change can be found as such. The first pass provided the big ticket items, right, the Stephens Lake reservoir, Grand Rapids, South Bay diversion channel, these large, relatively large bodies of inundation. Those came out right away in the first pass. And with each successive pass, the changes that we are finding, however significant, were actually kind of smaller and smaller and smaller. And this was going on right up until last week, in fact, right up until I was putting together this presentation. There is kind of a diminishing rate of return. You can keep spending more time on this, you can keep including better data.

For example, we were using 1:250,000 scale NTS base maps. We could use 1:50,000 scale NTS base maps, really detailed. You could add those in and do a whole other pass, right. So eventually you have to stop and say, this is the inundation that we have uncovered. It's likely an underestimate, and we have tried to be really clear on that in the report. It's a conservative estimate. And we know it's a conservative estimate because that's the only way to have a defensible estimate as opposed to, for example, the potential for an overestimate. We know this has to stand up to rigorous criticism and so that's how we have moved forward.

Okay. I guess I just lead into this slide. We know this is a conservative estimate of shoreline change. It doesn't include the full impacts of the Kelsey Generating Station. I mentioned that when we were looking at Kelsey, our historic map was actually published when the generation station was finished. So not a true indication of a pre-development condition. I don't know what changes happened between those years when construction started and when construction was completed, which is when that

historic map was published.

I mentioned it doesn't include the impacts of Wuskwatim. Those impacts would be since 2006, and our "current" data set of water bodies is dated 2006.

We also don't measure the effects of varying water elevations, flow rates, or volumes. That's not what this study does. This study looks at the changes in the extent of shorelines.

It's a snapshot. It doesn't indicate any variability, any changing in shoreline locations due to, for example, short-term fluctuations in water levels, hourly or daily. This is just a snapshot here, the shoreline levels, shoreline locations.

And lastly, I think I have hit this one several times, we were conservative when considering that combined horizontal positional accuracy of the analysis, always, always at the front of mind.

So a couple of examples of what this actually looks like on the ground, as I'm combing through all this data. Here's a little snapshot of a piece of -- this is Southern Indian Lake, and you can see, this is a historic map and this is

actually map 64G, and all of this light blue is the historic water body of South Indian Lake. All these other little sort of red-ish brown lines are just topography lines, those are contour lines, elevation lines. It's the light blue water bodies that we're looking at. So I'll show you what vectorization looks like, for those interested. There is all those pink blobs again, so this is a GIS shapefile of those historic water bodies.

Now, the next slide I'll show you is this, it's the same historical map but now overlaid with a GIS shapefile of current water bodies, current as of 2006. So I have turned on some darker blue, so it kind of looks like you're seeing double vision a little bit. There is that lighter blue historical map underneath, that's this, and over top of that now I have overlaid, with a little bit of transparency, a darker blue. That's that CanVec GIS data that shows current water bodies.

And the reason I wanted to use this as an example is because it's a very, very clear example of that horizontal shift that I was talking about. This is exactly what we want to avoid. Any time -- and you can literally see, the

whole lake system looks like it's shifted. And this is an example, whenever we saw this, where we could not assume that the changes in shoreline, because this would suggest a change in shoreline, is not significant. It could say just be due to just this inherent horizontal positional accuracy. Any time that we started to see this occur, and after you get to build this intimate relationship with all these maps that I built, you really just start to see this pattern. You just become quite keen. And after you have searched through several hundred lakes, you just see it, that's horizontal, that's a shift. That's not significant, that's not part of the analysis.

Conversely -- so that was on one map sheet. South Indian Lake stretches across 64G and 64B.

So now I'm going to move north along South Indian Lake. This is the northern end of South Indian Lake. It's on a different map sheet. You can see still here all of this sort of light blue, you can see this was sort of on an old school dot matrix printer, but here is the historical water body. I'll turn on that pink vectorization of the historical water body so you

can see again -- again, this is a very rudimentary exercise. This vectorization to get a nice tight GIS shapefile of these historical water bodies is really bang on.

I'll go forward a little more. This then, the map we're looking at now, you don't see that double vision. This is the historical map underneath, and on top of that I have overlaid a darker blue current map, current GIS shapefile of water bodies. And what you can see is the beautiful registration of the shoreline all the way across. There's none of that double vision, there's none of that shift where the whole lake looks like it's just off by a little bit, it doesn't exist here at all, all the way around, all the way around, lake by lake. Even if you look over here at these little lakes that are way off on the edge, that is the current, the GIS shapefile of current water bodies sitting perfectly right on top of the historical one. Very, very high confidence levels in the results of this geo-referencing, and consequently the results of any change that we can see.

So you can see here is an example where that darker blue area, this darker blue here

is what in 2006 is a water body, that wasn't a water body when this map was produced in the '60s probably. I can't remember when this one was produced. It's in the table, right.

Here, there was a water body historically, still a water body there. Same with all on this shoreline. But here, this is new water, this is inundation. Right. We can be very, very confident that this is significant inundation and not due to that horizontal shifting issue I was talking through.

And after, again, pass by pass, by spending all this time on this map, you see these two patterns again and again. And by giving it really close look and measuring these changes, you can immediately tell which areas of inundation, which areas of shoreline change are real significant inundation, real change, and which are just part of this potential horizontal accuracy issue and should not be part of the analysis.

So that total inundation number that I gave you, 1,340 kilometres squared, is only collected in situations like this. Right. Very, very high confidence in the results of lakes like this.

And there is, the last slide there is the inundation. That's the significant change that comes out of that change analysis. We had an old map, we had a new map, they registered perfectly. Any changes between the two are highlighted dark blue there. We added up the total area of all those dark blue areas to give us that number of total inundation in kilometres squared.

Okay. I'll finish off with some conclusions and recommendations. I think this study demonstrates the utility of using historical and current maps to document shoreline changes over time caused by generation stations, dams, control structures and diversion channels.

We can use this type of mapping to establish a defensible baseline study for future analyses of shoreline changes over time, linked to hydro, linked to other developments that affect water bodies.

I think this would be particularly useful where there are uncertainties regarding the scope of anticipated inundation and dewatering, as baseline studies could be used to compare and evaluate actual changes to shorelines over time.

Right. You can actually look back and see what actual changes really were according to a baseline, and this serves as a kind of baseline study.

And future mapping would see improved accuracy, and even higher confidence levels with -- I think I mentioned, for example, if we used larger scale NTS maps, 1:50,000 scale maps as opposed to 1:250,000 scale maps, the lakes look quite a bit bigger, you see quite a bit more detail, it needs more time and resources to do that, but that's an option.

There's other historic data, there's other maps, such as those available, this was made -- I was made aware of the Conservation Commission of Canada had studied it, as one person put it, they studied every lake and river in Manitoba. There is really good data out there, there is other stuff out there. We have just relied on this one set of NTS maps. It's good. We can keep going. We can do another pass, right, you can just keep on digging. And certainly fulsome sharing of mapping data, not only by the proponent, but with others, this requires data, this requires access to good data. The more data

we have, the better analysis we can do.

The commitment of more time and resources to locate additional historic maps, other data, and further analyse more defined areas, I think I have mentioned pass by pass by pass, as recently as last night as I'm putting together this presentation, although I'm getting diminishing returns, I can still find more changes. All the big ticket items we've got. I can still find a few hectares here, a kilometre squared or two here, which seems insignificant compared to the 1,300 some odd square kilometres that we have found significantly, but you can keep on finding more.

There's other options too. You can use Google Earth, for example, if we didn't want to use a 2006 data set for our current shorelines. You can use other satellite imagery to give you other more up-to-date imagery. There's all kind of options out there. There's a lot of directions you could take from this preliminary study.

So we considered the area immediately around, but not including the proposed Keeyask Generating Station, including water bodies connected upstream and downstream. Where mapping

shoreline changes over time across a larger geographic area, I think it's certainly become very clear now that Manitoba Hydro's hydroelectric infrastructures are so systemic, system wide, and incremental, that the impact of any one development or any one project really must be considered in the context of numerous others that are part of this disturbed hydrological system. It's sort of like taking the blinders off and then seeing the whole system.

And I think it's a rigorous defensible demonstration of the mapping technology that's now available, and increasingly used I think in environmental assessment, certainly in land use planning, could be used in the Keeyask case to provide a system wide analysis of what are ultimately systemic impacts. It's a system wide analysis for system wide impacts occurring to these linked and manipulated water bodies.

Thanks again for the time to go through this with you.

THE CHAIRMAN: Thank you, Mr. Flanders. We'll turn to cross-examination, the proponent.

MS. LAND: Excuse me.

THE CHAIRMAN: Sorry, Ms. Land?

MS. LAND: Yes, I do have some examination in chief questions to follow up.

THE CHAIRMAN: Certainly, I'm sorry.

MS. LAND: That's fine. And sir, it's 10:45, I'm not sure if you would want to take a break at this point. I have about half an hour of questions.

THE CHAIRMAN: Why don't we do your questions, and then we'll break, and then we'll come back with the cross-examination following the break.

MS. LAND: Okay, great. Thank you.

Thank you, Mr. Flanders. I wanted to pick up on the reference that you made in a slide towards the end of your discussion, and I'm going to actually go back to slide 40 of your slides. And to ask you a little bit more about --

MR. FLANDERS: Pardon me, which slide?

MS. LAND: Slide 40.

You mentioned the fact that you have been completing pass by pass of your analysis. And I was wondering if you could explain a little bit more detail why the data changed between last week and this week, and the one that had popped

for me was the data with respect to Kelsey. So slide 40 shows the inundated areas. And in the final report that was filed last week, for Kelsey, for instance, the inundated area was five kilometres squared. And then in the amended report, it's eight kilometres squared. And that's a 60 percent difference.

So there were some other changes, but I think that was one of the ones that was most dramatic. I was wondering if you could explain in a little bit more detail what happened there, why that changed, and also how that relates to other comments you made about accuracy, how you determine best accuracy in your analysis?

MR. FLANDERS: Absolutely. So it did follow from this iterative filtering process of going through these results that admittedly continues today. So what happened in that case was we found the -- we found even further upstream than I had initially been looking, further upstream from the development along the Burntwood River, some more inundation. And this is inundation that I am referring to here. And I hadn't, I had missed it. It's not like the others in that it's sort of a dam right there or a

control structure right here, or what have you. But as I have kind of got to know this river system, the Burntwood River flows into, of course, Split Lake. And just off screen is where the proposed Keeyask is, it's where Kettle is, Long Spruce, there's another one, Limestone, they are all just off screen. On a different map, they would actually probably, they could foreseeably all show up on the same map.

And so this is an example of more time on these maps, with more time getting to know these lakes and how they are connected, with more resources, you can continue to find very significant flooding. This meets all of those quality control criteria that I had described. You can see them here on this map as well. These are large inundation water bodies here. And so it's a reality I think of my -- in hindsight, I realize you could -- the more you dig, the more you find, and there are limits to the amount of time and resources we had to do this. But my eyes were still on these maps every single night and every single day, looking at this, putting together the report and the presentation, and finding more, I squeezed more in, it's significant

and that's how it came up, I would imagine. I think I mentioned even last night I found more little pockets, and that would continue. But at the end of the day, we know that it's an underestimate, it's conservative, but it's defensible. And so the previous number, was it five kilometres squared as opposed to eight, that's an example. So we only found three more kilometres squared as opposed to the 400 some odd that were from the Churchill River Diversion, the South Bay diversion channel, diminishing returns. But the previous version of the report was still defensible. It was an underestimate, but it was a defensible underestimate.

This version after this update is still an underestimate. It's less of an underestimate, but it is still defensible. I still consider both to be accurate. Neither of them are incorrect. The updated version is just slightly less of an underestimate.

MS. LAND: Thanks. And I'm going to ask you to flip to slide 59 now, just to pick up on what you were talking about in terms of just now, about the resources that allow you to do a more accurate analysis.

So the third bullet in your set of recommendations about how to improve accuracy is a suggestion or recommendation of more fulsome sharing of mapping data by the proponent.

Can you tell us a little bit about your request to Manitoba Hydro for information that they had about digital topography or maps for this area, and which maps and information you received from Manitoba Hydro?

MR. FLANDERS: Yes. In the latter part of your question, we didn't receive any from Manitoba Hydro. We had asked specifically for two things. One relates very directly to this analysis, which was I mentioned in that CanVec data set, that Federally distributed Natural Resources GIS data set of current whole number of things. Infrastructure was in there, settlements were in there, Indian reservations, water bodies, that was all part of this large CanVec data set.

One of those elements was a coverage of infrastructure, dykes, dams, levies, et cetera. And we had asked the proponent to help us with the identification of these things. Some of them were labelled, some of them weren't in the data set. We got it how it's distributed. And we had asked

for some help identifying these and figuring out what they were. There was often a very clear generating station such as Kelsey or Kettle. In the case of Kettle, in particular, and Grand Rapids you can see as well, there are these sort of linked pieces of infrastructure that spread out from the dam. And I wanted to make sure we knew what they were and the nature of them. You know, a dam is different than a generating station, which is different from a control structure, which is different from a diversion channel, et cetera. So we asked specifically for help with that, and we didn't receive any.

The other piece that we asked for is we actually wanted to do our own independent assessment of the potential inundation from the proposed Keeyask project to compare with the proponent's. And in order to do that, I'll use the expression again, you need a kind of apples to apples analysis to make sure, you know, control, all else being equal, all the control variables, can we do another analysis and get the same results? And in order to do that, we would actually need the same topography data. So this is what's called a digital elevation model.

That's the digital terrain model of the site around Keeyask that was built by the proponent and used to see what the inundation would be as a result of changing water levels. And without access to that, that topography data set, I would have had to use another one, which of course wouldn't let you compare apples to apples. We would have to use a different topography data set, we would have an analysis, there would be no question there would be differences, but you couldn't isolate the root cause of those differences. It could have just been because you were using two different topography data sets. So that was something we wanted to do but weren't able to.

MS. LAND: You mentioned CanVec, and I wanted to ask you two questions about CanVec. One is with respect to the CanVec information from the Federal Government about the location of Federal lands that are Indian reserves or Indian lands, which takes a variety of forms. But I notice that in some of your maps, you included information about the location of Indian reserves and lands, and in other ones you didn't. Can you explain why that would be?

MR. FLANDERS: Thank you. Yeah, it deserves an explanation, and I hope people weren't put off by the fact that some Indian reserves showed up on the maps and some of them didn't.

It was a very sort of raw data set in that way, there was very little ability, there was no ability to kind of assess any kind of hierarchy of kind of major centres, major settlements versus minor secondary and tertiary. And what ended up happening is in some cases there are actually so many reserves surrounding these water bodies, for lack of a better word, they completely clutter the map, and you just end up with all kinds of action going on in the map. And so in a couple of cases, I sort of filtered some of that out and dropped some of the Indian reservations off of the map, just to make clear the information that I wanted to jump out of the map.

MS. LAND: Similarly, you talked about the CanVec data from the Federal Government showing hydro infrastructure. And one of the things I had noticed at one point in one of the maps when you blew it up was a site called Russell Dam. Can you tell us about Russell Dam?

MR. FLANDERS: Russell Dam is actually

an example of something we, you know, part of what we needed help with, with the identification of these infrastructures. Russell Dam showed up in the CanVec data set right from the download, opened it up, and there is Russell Dam. We actually found some inundation rate upstream of Russell Dam. I even looked in Google Earth and found this, what appears to be a dam at Russell Lake. Yet I couldn't find, upon researching and trying to figure out the construction dates and that whole process of researching each development and figuring out when a pre-development condition would be, I couldn't find it. So it was a bit of a ghost dam. It's there, it's labelled, and there is inundation, but I couldn't peel back the layers any more. But, nonetheless, whether I have symbolized it as a piece of infrastructure or not, there was inundation behind it.

MS. LAND: And I think this is also related to CanVec. You mentioned the fact that you were using the 2006 CanVec data sets. Can you explain why you would use data from 2006 and not say 2012 or 2011?

MR. FLANDERS: Yeah. The 2006 pertains specifically to the hydrology chunk of

that CanVec data set, the water bodies. And when you go into the, in my computer mapping program, when I open this thing up, you can actually see each and every water body has what's called, it's a verification date or a validation date, it's a date associated with each and every water body, and it averages out to almost every lake was 2006. And that's the date then that you can pin on that water body. As of 2006, this was the water body. And certainly if there was more up to date data, I would have loved to use it. That's how long it takes to, I guess, assemble a defensible rigorous hydrology data set by the data provider.

MS. LAND: Those are actually all my questions.

THE CHAIRMAN: Thank you very much, Ms. Land. I quite like your estimation of time.

Okay. We'll take a 15 minute break and we'll return at 11:15 with cross-examination. Thank you

(Proceedings recessed at 10:58 a.m.

and reconvened at 11:15 a.m.)

THE CHAIRMAN: We'll reconvene, please. Ms. Land, you are finished with your initial presentation?

MS. LAND: Yeah.

THE CHAIRMAN: Thank you. Proponent, Mr. Bedford?

MR. BEDFORD: Mr. Flanders.

MR. FLANDERS: How are you?

MR. BEDFORD: Well, I'm fine. Good morning.

MR. FLANDERS: Good morning.

MR. BEDFORD: I represent the proponent of the Keeyask project, the Keeyask Hydropower Limited Partnership. And I have for you this morning two pieces of information which I am very confident will come to you as being very interesting.

Firstly, one of the participants in this proceeding, the Concerned Fox Lake Grassroots Citizens asked my client last summer for mapping before and after, showing the areas inundated by the Kettle, Long Spruce and Limestone dams. And that before and after mapping was provided. I conclude that you haven't seen that mapping because you have made no mention of it, either in the written report that you filed or in your presentation. So I commend it to your attention. You clearly have a wonderful passion for maps.

And when you are back in your office, I'm sure professionally you'll want to see the mapping that my client provided of those particular areas.

MR. FLANDERS: Thank you.

MR. BEDFORD: Now, the second piece of information requires me to ask you to go to page 11 of the report that you filed.

THE CHAIRMAN: The report or the presentation?

MR. BEDFORD: The report.

I'd like you to look almost exactly in the middle of page 11 of the report, and you wrote:

"Manitoba Hydro, upon request, declined to identify the CanVec vector data with each of its hydro generation installations."

And I did hear you repeat the same complaint this morning, that you had asked for this information and it was not provided.

So the second piece of information I have for you, Mr. Flanders, is that data which you requested of Manitoba Hydro was sent by courier for you on October 1, 2013, sent for you to the party, Ms. Whelan Enns, who retained your services

on behalf of Peguis First Nation. So the information that you complained you didn't receive, my information to you is it was sent for you by courier. No doubt, having received that information, Ms. Whelan Enns diarized November 25 to send it on to you.

I have no questions of this witness.

THE CHAIRMAN: Thank you, Mr. Bedford. Participant questions, Consumers Association?

MS. CRAFT: Thank you, Mr. Chair.

Good morning, Mr. Flanders, I have just a few questions for you. I am wondering if you --

THE CHAIRMAN: Just for the benefit of the witness, perhaps you could introduce yourself, Ms. Craft.

MS. CRAFT: I'm sorry, I did introduce myself yesterday to Mr. Flanders. I'm Aimee Craft. I am a lawyer for the Consumers Association of Canada. It's nice to see you again.

My questions are related to your methodology, Mr. Flanders. And I'm wondering if you might be able to refer us --

THE CHAIRMAN: Pull the mic in a bit.

You're very soft spoken.

MS. CRAFT: I'm wondering, Mr. Flanders, if you'd be able to refer us to any examples from other regulatory proceedings where this type of methodology or something analogous to it has been presented to and accepted by the regulator?

MR. FLANDERS: No, I don't think I could, not off the top of my head. In a regulatory proceeding?

MS. CRAFT: And would it be fair to say then that you haven't participated in any regulatory proceedings where you have presented this type of information and methodology?

MR. FLANDERS: That's correct, I have not.

MS. CRAFT: Can you point us to any peer-reviewed articles that would confirm this type of methodology as an appropriate method for determining inundation and dewatering?

MR. FLANDERS: Yes, I move in that world. In fact, earlier on -- I'm trying to think of what part of this process this was -- I was asked to forward along a body of reference material to serve as a support, as a basis for

this kind of analysis. I submitted along with, you know, my name and description, I'm trying to think of exactly what that document was, I don't have it in front of me. But there must have been half a dozen or 10 peer-reviewed articles that all, in their own way, do various pieces of this process of collecting historical maps, geo-referencing and vectorizing them to find shoreline change in other environments on coastal environments. So, absolutely, there is numerous, I would actually say this kind of analysis, this is really not rocket science. I don't know if it really sounds incredibly complex, but this is actually pretty straightforward stuff. All of the pieces that made up the analysis have been practised for decades, no exaggeration there.

In fact, when I am teaching introductory level GIS, not all, but many of the tools that I have to use to do this analysis that I walked you through, many of them I actually cover just in a basic introductory GIS course. This is standard stuff, I just think a very novel and relevant application of it.

MS. CRAFT: Could you maybe then point us to the leading peer-reviewed articles on this

particular methodology.

MR. FLANDERS: Off the top of my head? I wish I had that list in front of me. I actually submitted this list of studies that I had visited. I can't even come up with one off the top of my head.

MS. LAND: Mr. Chair, would it be in the more extensive CV list of published publications that you had, would have done?

MR. FLANDERS: In my own CV?

MS. LAND: The CV that was submitted in October that has a more extensive list of your peer-reviewed publications?

MR. FLANDERS: There's a list of certainly my own peer-reviewed publications. I have done at least one study actually analogous to this one. It wasn't peer reviewed. The list I'm actually thinking of, kicking myself for not bringing it, we had to submit this list of materials. I think, Lorraine, you were part of this conversation where we were lining up the kind of things I was going to be presenting and a body of documents that support this kind of research. So I just sort of skimmed back in my archives and said, well, this is part of this body of research,

this is part, this is part, this is part.

MS. LAND: And we can provide an undertaking to provide that list if that would be of benefit.

(UNDERTAKING #12: Provide list of articles supporting research)

MS. CRAFT: Okay. Moving on to one last question, Mr. Flanders.

Assuming that your analysis into the extensive inundation and dewatering is directionally accurate, are there any other potential sources for some of the effects, apart from hydroelectric development or those that you have mentioned in your presentation?

MR. FLANDERS: Are you asking, are there any other potential root causes of the kind of inundation that we're seeing in the maps?

MS. CRAFT: Yes.

MR. FLANDERS: I asked myself this question as well, and I couldn't think of any that would be responsible for this scale of change.

MS. CRAFT: So are you saying that there are no others that have been taken into consideration?

MR. FLANDERS: I have thought about

this for six months, and I can't think of any other single root cause for the kind of change that we found in these maps. The world is a dynamic place, full of varying land uses and all kind of infrastructures and complex systems of transportation and harvesting and resource management and change, but we're very confident that the inundation that we found and marked on the maps is from the infrastructure noted in the maps.

MS. CRAFT: Okay. Those are my questions. Thank you, Mr. Flanders. Thank you panel.

MR. FLANDERS: You are welcome.

THE CHAIRMAN: Thank you. Concerned Fox Lake Citizens?

MS. PAWLOWSKA-MAINVILLE: Good morning.

MR. FLANDERS: Hi.

MS. PAWLOWSKA-MAINVILLE: Thank you, Mr. Flanders, for your presentation. I only have a few questions and they are more of a general question.

Do you see your method of being an effective way of working with First Nations and

traditional knowledge, because traditional knowledge tends to look at impacts in like a big broad picture way, and could you talk a little bit about that?

MR. FLANDERS: Absolutely.

Actually, earlier on when the very initial discussions were happening about doing this work, I had envisioned, I had hoped that it would involve actually site visits and being able to travel to some of these places. Usually when I'm working, in fact, always, almost always when I'm working with First Nations communities, I'm working in a rural area in the north or in the far north. It's in situ, it's in place, it's working with people, it is working with hunters, it is working with trappers. I have interviewed hundreds. So I had actually hoped that I could speak with people that live in these places and that use these water systems, and that trap there and fish there, to actually help me uncover some of these places and help me sort of zero in on these places where they felt there was change, to help guide this whole sort of filtering that I was describing.

So I think this would be actually

ideally paired, I guess this is kind of -- this is kind of the -- I have heard the term western science come up the other day. This is kind of the western science way of measuring change. But really it would improve the efficacy of the work, and certainly the efficiency, and I think the validity and usefulness of the work to consult with the people that live in all these places that I am mapping. I haven't even visited a lot of these lakes. It's been this tedious process of getting to know these places, and I really would have appreciated being able talk to the people that use them and know them intimately themselves.

MS. PAWLOWSKA-MAINVILLE: Thank you.

So do you think that this would be a very effective way of helping First Nations see the extent of the effects from hydro development?

MR. FLANDERS: Absolutely, First Nations and others, absolutely.

MS. PAWLOWSKA-MAINVILLE: Thank you.

So your method kind of looks at the big picture. And with the Keeyask, there is this offsetting program where First Nations are going to be flown to other areas to pursue traditional harvesting practices. So do you think that your

method could be used to predict whether or not those areas that First Nations will be kind of relocated to could be affected by hydro development?

MR. FLANDERS: Could you ask me that question again?

MS. PAWLOWSKA-MAINVILLE: Yes, of course.

So the Keeyask project has this plan, it's called the offsetting program, where First Nations who are directly impacted with this project will be flown to other areas in order to pursue the traditional harvesting practices, trapping, hunting and snaring. And do you think that your method of mapping and predicting impacts could be used to determine whether or not certain impacts or inundations or drainage will be felt in those areas that those First Nations will be relocated to?

MR. FLANDERS: Since this analysis is looking into the past, it's backward looking at changes that have occurred up until now, up until 2006, I would actually have to say no, it wouldn't do it. It wouldn't serve that purpose that you have described. I think what you are describing

is, could you use this analysis to forecast future conflicts between traditional land users and future inundation? That's not exactly what this does. This would sort of, to modify it slightly, this actually just suggests all of the places that in the last, over the last century have changed. Now that I supposedly -- I suppose could not now fly into, because they are inundated, or the opportunities for traditional activities would have changed or have been diminished or would have to be adapted as a result of the changes that I found.

That was a bit wordy. Did that come through clearly?

MS. PAWLOWSKA-MAINVILLE: Yes, I think so.

So you mean that this method could be used to almost see the extent of the traditional knowledge that has been kind of vocal about some of the impacts that hydro has done in the past?

MR. FLANDERS: Oh, I see, like a verification?

MS. PAWLOWSKA-MAINVILLE: Yes, I guess you can call it that.

MR. FLANDERS: Yes, it can be seen as

a verification. And the only caveat I would add is that -- I'll put it this way. All of the changes that I have identified are significant for all of those quality control reasons I walked through, it's painstaking. But it's not likely that I have accounted for all of the changes. There could very well be, I would go so far as to say it's likely that there are other changes that we haven't found in this analysis, just due to the limitations of our time and resources.

And there are some specific examples of that where we had heard anecdotally, I think the example was -- was it Cross Lake or Split Lake? I could open up the map, but it might be distracting -- where we had heard anecdotally that there had been changes, and I didn't find any, I couldn't find significant changes. That's not to say that there were no changes there, that's only to say that this kind of analysis doesn't uncover the changes there.

MS. PAWLOWSKA-MAINVILLE: Okay, thank you.

So one of the changes that you did say was going to occur was, for example, the presence of water bodies have been -- a new creation of

water bodies is one of the effects. So what changes do you think, or what impacts do you think these new water bodies would have on traditional harvesting or trapping, from what your experience has been, that individuals perhaps vocalized to you.

MR. FLANDERS: I am happy to provide an answer to that based on the time that I spent with harvesters in the north, although outside of Manitoba, but in Saskatchewan and Northern Ontario and further north. As I am not -- I am not a harvester nor a trapper myself, I feel like I'm kind of speaking outside of my expertise, although -- and then I do use in occupancy mapping, I hear a lot of the stories so I can speak to some of that. I am just putting out that caveat, that question would probably be best directed to a harvester.

MS. PAWLOWSKA-MAINVILLE: Okay, fair enough.

And I guess the final question I had was, because new water bodies would be created, from what your experience has been with working with First Nations, do you think that they tend to see that those new water bodies kind of changed

the way that their knowledge has been of the environment in the past? Has it affected their knowledge?

MR. FLANDERS: Are you asking, has the inundation that's occurred, that I'm showing in the map, has that inundation changed the way traditional land users perceive their land base? Did I get that quite right?

MS. PAWLOWSKA-MAINVILLE: Yes, yes. Because, to elaborate on my question, because traditional knowledge is based on knowing the land.

MR. FLANDERS: Absolutely.

MS. PAWLOWSKA-MAINVILLE: And if there are areas that are all of a sudden inundated or new landscapes, like new lakes or new water bodies are created, that changes the way that knowledge is understood and is perceived. So do you find that is an important impact that most First Nations that you had been working with felt that it was important?

MR. FLANDERS: The first thing that came to mind before your follow-up clarification was, there's no question to me that it would change their perception of their land base.

Because the harvesters that I have met, and I'm talking about hunters, real harvesters that were either born on the land, they are out on the land every chance they get, they are bush harvesters, they survive off of the bush economy. They are so -- I can't even -- I can't even do it justice, the connection and understanding that they have to the land. It's so -- they are so intimately connected to the land that any change, whether it's small, or what I would refer to as large changes -- like the inundation that I am showing would absolutely affect their perception of the land. There is just no question in my mind that it would. And that's my perception based on spending a lot of time with harvesters. And that's not my understanding as a harvester myself, just my perception.

MS. PAWLOWSKA-MAINVILLE: Thank you very much. That's all the questions I have.

THE CHAIRMAN: Thank you. Pimicikamak?

MS. KEARNS: Hello. Stephanie Kearns for Pimicikamak.

MR. FLANDERS: Hi.

MS. KEARNS: I'm wondering if you can

touch on what are some other methods that could be used to calculate inundation, other than the one that you used?

MR. FLANDERS: To calculate this historical inundation that's occurred over this last century like I've done?

MS. KEARNS: Right. So maybe a better question is, are there other methods that could be used?

MR. FLANDERS: Yeah, there are other methods. They all have their pros and cons. One method actually that would be applicable in some cases, I could kind of go on and on about the exact circumstances when this would work and when it would make sense to do something else. But as an example, using remotely sensed imagery, using satellite imagery itself, or aerial photography itself, and extracting the features from, for example, satellite imagery, identifying the water bodies from satellite imagery in a more kind of automated way, the remote sensors, the people that work with satellite imagery are really good at automating and scripting ways of detecting changes over large, large, large scales that aren't quite so manual. Like sort of, I'm sure they are

equally as time consuming, but it's a different process when you're using satellite imagery as opposed to historical paper maps. So that would be one other alternative source of data. There's a number of reasons why it didn't make sense in our particular case, but that would be one.

Another I think I had mentioned is changing that library of historical maps. That's kind of, the meat and potatoes of this whole exercise was that incredible collection of historical maps. If you could swap that out, as I just mentioned, swap that out with historical satellite images, we have this long history of several decades of satellite imagery that has been collected all across the planet. We could dig into those. I think there's limitations to doing that. We could also use 1:50,000 scale historical base maps, maps that are different scale, whether they are NTS maps or not. Another data set I was made aware of is the Conservation Commission of Canada, which I hadn't heard of, someone actually had told me of them, had done all kinds of studies on the river systems and lakes in Manitoba. That would be another data set to mine, to pull out, to sort of do this comparison of before and after

change.

There are others. We could use Google Earth, for example, as a way of getting a more up-to-date version of current shorelines to compare with our data set of historical shorelines or another one. You can sort of pull in and swap data sets and redo it. There's multiple sources for -- there's a number of reasons we picked the one that we had, but there's more than one way to do it.

MS. KEARNS: Thank you.

So I'm wondering, the method you chose, in a perfect world would you have wanted to use other data sets than the ones that you had available to you to make it a better analysis, or is the ones that you chose the best option?

MR. FLANDERS: In a perfect world, i.e. with more time, resources?

MS. KEARNS: Right, that's what I was thinking. So if this analysis were done sort of again, and you had more time, more resources, would you do it the same way or are there ways to make it better?

MR. FLANDERS: There's always ways to improve things, always. I think in a perfect

world, as you described, where I had all the time and resources in the world, I would have actually preferred to use, I really liked sticking with the NTS -- this NTS map series I think was the right decision. I would have stuck with that. Ideally using a different scale would have allowed us to detect fire scale changes, which ultimately when you add them all up, they do add up to large numbers. And we weren't able to find those.

I showed some examples where just due to horizontal accuracy at the scale we're working at, there were places on the map where I didn't have a high confidence in the result of the geo-referencing process, the registration between the two maps, and it wasn't included in the analysis. So, ideally, using maps where I didn't have to do that, I didn't ever have to draw up certain parts of the study area for that reason, that would have been ideal. One way to do that would probably be using a larger scale map set. Of course, the amount of area that's covered in a 1:50,000 map is like this, and in a 1:250,000 scale map is like this. So it's way more maps that you'd need to fill up the study area. And since our aim was this larger study, longer period

of time, it's more of a reconnaissance higher level, the decision, and I think it was the right one, was to go with these 1:250,000 scale maps.

MS. KEARNS: Thank you.

MR. FLANDERS: You're welcome.

THE CHAIRMAN: Thank you, Ms. Kearns.

Manitoba Wildlands? Is anybody prepared to ask questions from Wildlands? No? Thank you.

So panel members? Mr. Shaw, I think you had one question at least?

MR. SHAW: I just have one question, and it's following up on a question that Ms. Craft had touched upon, and that is with respect to the source of the inundation, you know, shown in the dark blue portions of those maps, you said, as I recall, that you were satisfied that those were due to the dams, but you had reflected on it over quite a period of time.

So my question to you is, are you saying that you would rule out say extreme patterns, weather conditions?

In other words, let's suppose you had a ten-year period of unusually wet weather conditions in that area?

MR. FLANDERS: Um-hum.

MR. SHAW: Would it not be reasonable to say, well, that that could very well be superimposed on the existing flooding and that that contributed in a significant way to the shoreline being, you know, moved say half a mile or something, to take an extreme example, or alternatively years of drought? I'm just interested in knowing why you seem to, on the face of it, exclude weather conditions?

MR. FLANDERS: Yeah.

MR. SHAW: Especially in a time of climate change and so on.

MR. FLANDERS: Yeah, I'm glad you asked.

Two things come to mind. The first is, what you are describing, this multi-year, you have described two different things. At one point I think you were actually describing climate, these multiple year trends where things have changed year after year after year, things are a little bit different now. It's a little bit different than weather, as a wet month and a dry month and that kind of thing.

So this analysis would capture any of

those trends that have occurred. So, for example, if a climate scientist was prepared to tell me that in the last 10 years, to use your number, as a result of climate change, an impact of a changing climate has been inundation over the last 10 years, then this analysis would have captured that inundation, because our map of the current shorelines would encompass that.

The analysis would not be affected by, you know, a dry spell or a wet spell or, you know, there are snow years and dry years, it's not that kind of data set.

And I think, actually, I have never heard, and I spent a lot of time doing climate change in community planning and adaptation and mitigation planning with communities specifically looking at climate impacts and how to plan for them, outside of Manitoba. And I have never heard any instance anywhere of this kind of inundation, sustained inundation, and a climate scientist stating that it's an impact of a changing climate.

The closest I have come, and the one that we work with a lot, certainly in on the coast, is the extreme events, particularly in the spring, that spring thaw, the frechette it's

called, there's a lot of work looking into this kind of variability is this changing spring frechette, as the warmer, longer, hotter, dryer summers occur, that that melt comes, and the dynamics of that melt are changing.

MR. SHAW: Well, fair enough. But let's suppose you had two or three years where there were such extreme events, and let's say on the wet side, so to speak. In order to determine whether or not that actually moved the shoreline, I take it inherent in that would be that you have to have very current data. Would that be fair comment?

MR. FLANDERS: You would need very current data to spot that.

MR. SHAW: Year by year?

MR. FLANDERS: Yeah, actually, yes. And so the second point I wanted to make is, I think one way of getting at those changes would actually be to, rather than taking the two book ends like what we have done, we have gone back to, for example, 1961 and 2006, and we see the change in between. One way to address that would be to actually go and look at the '80s, find those maps for the '80s, find the map of the same area, the

NTS map for the '90s, find another one around 2000, et cetera, and see the change there. There you can actually see that train and uncover some of those effects are being there.

And actually that's a point that I hadn't even made, is that that would be another way to really improve the quality and improve the kind of the conclusions, the quality of the conclusions and what you can derive from the analysis by increasing the number of time steps that you have looked at, rather than just taking the book ends.

MR. SHAW: Right. So in order to do those slices, if you will, what would be your main technology? Like Google Earth or what?

MR. FLANDERS: We could certainly use Google Earth. I think my preference kind of in following the platform I have built up so far would be to keep the data sets consistent. I like a consistent apples to apples to apples. The data set in the '60s should be apples to apples with that of the '70s, '80s, '90s. I would actually continue to use the NTS map series, but just find those maps that were published in the '80s. And actually the University of Winnipeg is just one

example of one source that had a whole series of maps from the '80s. Go find the NTS maps from the '90s, find the ones from the '70s, and stick with the NTS maps, we could stick with the 1:250,000 scale maps, keep all of that consistent, and just add more time slices and find those changes in between. Yeah, that would uncover that.

MR. SHAW: Very good, thank you.

MR. FLANDERS: You're welcome.

MR. NEPINAK: Good morning. Can you go to page 34, and this would be mostly a clarification, which is map 64B. Is there a chance you could put it up on the screen?

MR. FLANDERS: Yes.

MR. NEPINAK: I just want to clarify that. And that's the Diversion. I had a vision when we talked about this Diversion of wider lines on the shorelines.

MR. FLANDERS: Say it again?

MR. NEPINAK: Wider, the shorelines, the lines being bigger on the shorelines. And when I saw this, this morning, it doesn't look like it's that inundated with, as being flooded. Can you give us an idea, or zoom into the, say this portion of the map, and just pick an area

there where that's got a thin line and give us an idea of how many, what's our -- yeah, right where you've got the cursor there, where that says 900. From the top of that water, yeah, right across there, how big an area is that?

MR. FLANDERS: Right across there, if I had my GIS open I could tell you within many decimal places. But what I'll do is I'm just going to look back to my scale bar. If I can, I'll try to bring up one of these wire lines along with our scale bar, there it is right there, and estimate. So I could have used a finer scale if we're talking about, to look at fine details. But if this is five kilometres, this black bar, that distance between the top of that, as you refer to wire lines, to the bottom, it looks like it's about, it looks like it's less than a kilometre, maybe 750 metres.

MR. NEPINAK: Okay. I just wanted to get a visual on that. And that's quite a sizable -- it's not a small area, even though it doesn't look that, it doesn't look that big on the map but it's still not a small area.

MR. FLANDERS: I agree. I think there's a fallacy in thinking an area such as that

is small only because it's relatively smaller than the inundation that we are finding in other parts of the map. So I agree.

MR. NEPINAK: Yeah, okay. And so we get that all over the lake there, and it's just a point I wanted to make.

MR. FLANDERS: Yeah.

MR. NEPINAK: Because I expected to see more blue, you know. That's it.

MR. FLANDERS: Okay.

MR. NEPINAK: Thank you.

THE CHAIRMAN: Mr. Yee, any questions?

MR. YEE: Yes. Thank you, Mr. Chair.

Mr. Flanders, just a couple of questions for clarification. In terms of maps for Northern Manitoba, are they mostly low resolution, 1:250,000?

MR. FLANDERS: The CanVec coverage claims to be nationwide, it claims to cover the whole width of the continent. So, in that case, I would expect if we looked, we would find -- I won't use the word better or poor, I think what's good or poor depends on does it satisfy the objective? And that 1:250,000 scale maps satisfied the objective, so they were good. I

think 1:50,000 NTS maps do in fact cover the same area.

I have noticed that, in other work when looking at actually older maps, there were areas that we found that did not have coverage. And it's just a fact of the limited amount of activity that was happening in some of these more remote parts of the province, especially in the far north where there weren't a lot of people, there tends to be less coverage there.

But that being said, I would have expected to be able to find a consistent 1:50,000 scale set of maps as part of the same NTS database map library.

MR. YEE: Thank you.

So, today, would you say that the CanVec GIS data sets are more complete for Northern Manitoba in terms of their mapping now?

MR. FLANDERS: CanVec, yeah, these 2006 current maps of shorelines, absolutely complete. Yeah, in fact, the whole country, they are all there.

MR. YEE: Great. Thank you very much.

MR. FLANDERS: You are welcome.

THE CHAIRMAN: Mr. Nepinak has another

question.

MR. NEPINAK: Okay. The first two maps you showed on this, the one of Northern Manitoba?

MR. FLANDERS: Oh, yeah, early on?

MR. NEPINAK: Yes.

MR. FLANDERS: Would you like me to bring that map up?

MR. NEPINAK: Yes, please.

Now, there we -- did you do any colouring to the river?

MR. FLANDERS: No, it's right off Google Earth.

MR. NEPINAK: Okay. So we can see the river quite plainly there, as opposed to the Churchill River?

MR. FLANDERS: Yeah, the Nelson comes through very clearly at this scale, the Burntwood, the Diversion channel, you sort of lose the Churchill though, yeah.

MR. NEPINAK: Why is that?

MR. FLANDERS: Answering that question with certainty, with conviction, would be outside of my area of expertise.

MR. NEPINAK: Okay.

MR. FLANDERS: I don't want to speculate.

MR. NEPINAK: Okay.

MR. FLANDERS: I'm too much of a scientist.

MR. NEPINAK: All right, thank you.

MR. FLANDERS: Okay.

THE CHAIRMAN: Mr. Flanders, were you able to compare what you observed in the flooding with what was predicted at the time that these hydro installations were put in?

MR. FLANDERS: The historic, all of these historic developments?

THE CHAIRMAN: Yes.

MR. FLANDERS: No, I was not.

THE CHAIRMAN: Okay. So I'll ask this question but you may not be able to answer it. The estimates for what will be flooded by this project, by the Keeyask Generation Station, can we assume that they are fairly reliable or very reliable?

MR. FLANDERS: I have no way of verifying that. I am reluctant to make any kind of assumption at all unless there's analysis to support it, which I wasn't able to do. Although

it certainly could be done, I'd be happy to do that. I would -- you know, I think the best -- unless an independent analysis was done, I think that's perhaps up to the board to decide if it was done in a sufficiently rigorous manner by experts. And it appears to have been but there's no way to verify with an independent study if one hasn't been done.

THE CHAIRMAN: This next question, it may be a bit of a chicken and egg. The historical NTS maps, were they initially done based on groundwork or from aerial photography?

MR. FLANDERS: A combination of both.

THE CHAIRMAN: Okay. What scale were the photographs?

MR. FLANDERS: Good question. I think what you mean is what resolution, what scale is attributed after those flights are flown, after those photographs are taken, after all that and they extract features like the shorelines out of them. And in the case of the NTS maps, they were extracted to two scales, 1:50,000, 1:250,000. But I think you are asking me about the quality of those original air photos.

THE CHAIRMAN: Yes.

MR. FLANDERS: I don't know.

THE CHAIRMAN: Okay, thank you.

MR. FLANDERS: I haven't seen these ones. I have seen others. I don't know.

THE CHAIRMAN: Doing this work that you have presented this morning, and Ms. Kearns earlier asked you about doing it on a 1:50,000 scale and you said it could be more refined, how much of a time commitment is it? How much of a time commitment was it doing what you did and how much would it take to do 1:50,000 which I guess is many more map pieces or sections.

MR. FLANDERS: I'll try to answer this in layers, sort of going deeper to the punch line. It wouldn't take a lot more time. I think it would be ideally done not all at once. It would be done in pieces. The advantage of using this scale of map is that we were in a position to do it all at once. And so I would suggest actually that the way to do it would be iteratively over time in manageable pieces that could be reviewed. It's this kind of iterative build on it, build on it, build on it.

How much more time would it take to do a study using those 1:50,000 scale maps as opposed

to 250,000 scales? Since many of those 1:50,000 scale maps fit into 1:250,000 scale maps --

THE CHAIRMAN: Yes.

MR. FLANDERS: -- I would probably suggest to you, and since it's that manual process of geo-referencing them one by one, thankfully we only had to do 11, you would end up with dozens, over hundreds.

THE CHAIRMAN: Hundreds.

MR. FLANDERS: It would take several times more. Off the top of my head, it would take three, four, five times longer to do the same amount of work all at once.

As I think about this more, there's probably things that would become quite a bit quicker compared to what we were running into here, and there's things that would take longer. The things that would take longer is just the sheer volume of maps would take longer. I think the things that would actually become quicker is you're georeferencing these things, pinning these things on Manitoba where they belong. On these smaller maps. It's a lot less area. You could probably use fewer control points and get better accuracy so you could achieve better results with

less of that manual intensive labour of going into georeferencing them all.

So I know that was a long-winded answer. It would take several times longer. It would certainly be out of the scope of what we could have done for this. But that being said, those kind of projects are done. Those kinds of historical mapping projects, those kinds of change detection projects at that scale are done, absolutely. In fact, some of the body of the peer-reviewed literature that I was referring to earlier, does work at that scale. And it would be just a matter of setting up the work plan in an iterative step wise fashion to do the whole study area, it would take several times longer.

THE CHAIRMAN: Is there enough historical information available that you could sort of attribute different flooding to this project or that project, given that they span at least 50 years but go to Kelsey in the early '60s, 50 plus years. Is there enough historical information available that you could attribute the different levels of flooding or inundation?

MR. FLANDERS: Somewhat, I think so. This gets to that issue about time steps. And to

kind of generalize across all of the information that's in table 1 about construction start dates and end dates, there's kind of these phases of development. There was this pocket in the sort of early '60s when a whole bunch of things happened, kind of within the same decade.

I'm guessing that you could find maps that kind of book-end the before and after of that little pocket that happened in the early '60s and any development that happened, for example, in the '70s, maybe decade by decade, grab that little pocket, get the before and after maps. Do the same thing in the '80s, get the before and after maps. So that might not actually translate to detecting change by a project by project by project basis. But certainly on a decade by decade basis, there might be a handful of projects that kind of get grouped into one

The other thing I'll note is that you can, in this analysis, the way these maps are, and it is an assumption, it's not as good as doing that kind of analysis step-wise that I described, but you could simply grab just the inundation that's directly upstream from a dam and just see what the total inundation is there as a proxy.

This inundation, presumably, would be from that dam right downstream. Go over to this next dam, just collect the inundation that's immediately upstream from that one. In fact, in another study, that's actually how we reported it. You could even get those kinds of answers just from the study we have done. I just didn't report anything quite that way. I reported it map sheet by map sheet and not development by development.

THE CHAIRMAN: Thank you, Mr. Flanders. Any other questions?

Ms. Land, any redirect?

MS. LAND: Thank you, Mr. Chair.

Just three quick questions on redirect. So I'm going to pick up first with one of the questions that was asked to you just recently by the Chair. So the Chair was asking if you would be able to verify that projections for the proponent is projecting for the flooding in the Keeyask area. My question for you is what would you need from Manitoba Hydro in order to verify what the proponent is suggesting will happen?

MR. FLANDERS: I think to do an independent assessment of that, you would need a

couple of things. First of all, I would certainly want to pair up with an engineer, a hydrologist or hydrological engineer, together with someone with my skill set. So that would be the first thing, is construct that micro team.

The second thing would be, I think the other things are just kind of nuts and bolts, you would need that higher -- you would need the same topography data set, that nice high resolution topography that the proponent used for their analysis. You don't want to use the exact same one for the independent study, so you'd need access to that.

And you would also then need an indication of the hydrology, the dynamics of water levels, what these water levels are to forecast and the potential inundation from them. And I can only presume this would be part of why you would certainly want to be working with a hyrological engineer. You would want a good understanding of how flows and flow rates and the variability in flow rates would potentially change those lake levels in that whole dynamic and the resulting inundations.

So someone that can put together those

people, part of the micro team, and just those specific pieces of data to do the analysis.

MS. LAND: And for the analysis, did you have access to the high resolution topography data that the proponent had for their projections?

MR. FLANDERS: No. If I recall, I believe the term was it was proprietary I believe. So I couldn't access it.

MS. LAND: Okay. And Mr. Bedford asked you as well about, well he didn't ask you, he told you about the two occasions where information was shared, and he referred to information that was sent by courier to you via Whalen Enns & Associates on October 1st. Were you aware of the paper maps that were sent by courier?

MR. FLANDERS: No, I was -- I was a little bit confused by that. And we may just be mixing our terminology. It sounded like a data set was distributed or had arrived.

MS. LAND: And I think maybe Mr. Bedford might want to clarify that that was not a data set, but that was a paper map that was sent.

MR. FLANDERS: Well, a paper map.

MR. BEDFORD: Well, I'm never ever so

pleased to have a second opportunity.

What was sent was a CD, so digital data, and paper maps. It wasn't sent by my client to you by courier, so let's be really clear. It was sent pursuant to your request to Ms. Whelan Enns by courier on October 1, 2013, but clearly for you to use because you had requested it.

Now I did realize immediately, no fault of yours, that you were quite puzzled because you didn't receive this information. And you weren't here earlier this week, so you clearly had no understanding of my parting comment that no doubt what has happened here is that Ms. Whelan Enns diarized to send this material on to you and diarized it to November 25.

MS. LAND: Mr. Chair, this is inappropriate.

MR. BEDFORD: I won't bother explaining that to you because everyone else here --

MS. LAND: This is an inappropriate line of questioning by Mr. Bedford. And I do want to ask the proponent, I have seen the trail of e-mails and I'm aware of the exchange of information. This is my witness. But I am not

aware of data sets that were sent to my witness that were anything other than publicly available maps and data that are already available. So this is why I'm as perplexed as my witness is.

So perhaps if the proponent would be willing to make an undertaking to provide another copy of that so we can verify this information. If they could provide a copy of what exactly was sent on October 1st. There seems to be a miscommunication, and perhaps it's on our end, but I'm a little concerned about the fact that there is a misapprehension that is being left that has nothing to do with my witness's ability to review the information. And maybe based on some missed information of what was sent and not sent to my witness.

THE CHAIRMAN: Ms. Land, I would agree with your comment that Mr. Bedford was out of order with his little shots at one of the participants.

However, from what I heard, this information was not sent to your witness, it was sent to Manitoba Wildlands and presumably Manitoba Wildlands did not forward that information.

Ms. Whalen Enns is now in the room and

I would ask if she can respond to that now or if she wants to discuss it with her staff and respond after lunch.

MR. FLANDERS: Can I also -- oh, sorry.

THE CHAIRMAN: Perhaps we can deal with it right now. Ms. Whelan Enns, come up to the front.

MR. FLANDERS: While Gail's coming, I can maybe offer an alternative explanation as well?

THE CHAIRMAN: Certainly.

MS. WHALEN ENNS: Mr. --

THE CHAIRMAN: Just hold on Ms. Whalen Enns.

MS. WHALEN ENNS: I just wanted to make sure my full name is in the record rather than first names.

THE CHAIRMAN: Don't worry about that.

Mr. Flanders.

MR. FLANDERS: This gets just to what I was referring. This is maybe a problem with terminology. We didn't need data, if that was what was sent. We had the data. What we needed was clarification on what was in it, what were

these structures? Which ones are dams? Which ones are cofferdams? Which ones are control structures? Which ones are generating stations? It was just this sort of clarification of what's in there and we can kind of get so far. You can do your digging around and figure out what's what. But there were these moments where we wanted verification from Manitoba Hydro since they were Manitoba Hydro structures. That's specifically is what we were asking for help with with.

THE CHAIRMAN: Thank you. Mr. Bedford, are you aware of the nature of the information that was sent to Whelan Enns and Associates or? Did the information address the concerns that Mr. Flanders has just noted?

MR. BEDFORD: Ms. Cole handled this so she can respond to you.

THE CHAIRMAN: Please.

MR. BEDFORD: And if people would like the information or the courier slip, I gather we can provide both.

MS. COLE: As Mr. Flanders has noted, we were specifically asked to identify our infrastructure in the CanVec database. We produced both maps and a pdf file so it can be

e-mailed to Mr. Flanders at the request of Ms. Whalen Enns. Both were couriered to Ms. Whelan Enns on October 1st at the request of Ms. Whelan Enns and through e-mails with her.

THE CHAIRMAN: Ms. Whelan Enns, can you comment on that, please?

MS. WHALEN ENNS: Yes, Mr. Speaker, and thank you. We probably need to make sure in terms of the record that Manitoba Wildlands is a participant in these proceedings, that we have a discussion that has to do with Whalen Enns & Associates --

THE CHAIRMAN: You're getting funny here.

MS. WHALEN ENNS: Well, I wasn't --

THE CHAIRMAN: That's totally irrelevant.

Okay. Mr. Bedford or Ms. Cole, was this is information forwarded to Whalen Enns & Associates or Manitoba Wildlands or Ms. Whelan Enns specifically?

MS. COLE: We'll have to check the courier slip. In all fairness to us as the proponent, does it really matter? It's the exact same address and the exact same individuals who

are receiving the information.

THE CHAIRMAN: Well, I think it might. My understanding is that, and I could be totally wrong in this, but the impression I have had over the last number of months is that Ms. Whelan Enns, Gail Whelan Enns, is participating under the title or under the rubric of Manitoba Wildlands but that other staff who are co-located in the same office are operating under Whelan Enns Associates and they are working with Peguis on this. And I believe it's different people in the office who are doing that. Am I correct?

MS. WHELAN ENNS: Yes. Excuse me, I'm clearing my throat. In terms of working with maps, databases, GIS data and so on, there's specific individuals in the same office who deal with these matters. And of course there's a different individual than myself who is the coordinator for --

THE CHAIRMAN: And who would that be?

MS. WHELAN ENNS: The coordinator for Peguis First Nation.

THE CHAIRMAN: Yes.

MS. WHALEN ENNS: Whose witness Mr. Flanders is.

THE CHAIRMAN: Yes.

MS. WHELAN ENNS: Is Jared Whalen.

THE CHAIRMAN: He's just fled the room.

MS. WHELAN ENNS: I was late arriving myself. So, Mr. Chair, I only have pieces of what has been said which is why my initial comment.

THE CHAIRMAN: Okay. And I apologize for misunderstanding, but I thought you were going somewhere else.

MS. WHELAN ENNS: I'm trying not to.

THE CHAIRMAN: But so this was Mr. Whalen who is the --

MS. WHALEN ENNS: Yes. You'll find that's the way the CEC records for participants.

THE CHAIRMAN: I'm aware of that. And just as we were talking, he doesn't seem to be very observant. He wasn't paying attention. He got up and left the room just as you were about to bring up his name.

MS. WHALEN ENNS: The last thing he said to me was that he was dealing with an ill child in texts. So that may be why he's out of the room right now. If I may --

THE CHAIRMAN: You may.

MS. WHELAN ENNS: Because I heard some of this and staff --

THE CHAIRMAN: Mr. Whalen, would you care to come up at this time, please. I don't need to go into a lot of detail but what I want to know is if somebody in your office received the information that the proponent is speaking about? The proponent has said that information about CanVec vector data was sent to Whelan Enns Associates.

MR. WHALEN: Yes, aWe received a paper map. I visually inspected it with our GIS technician, Mr. Downing. I do not remember there being a USB key drive with a pdf of the map. I think the sticking point here is what Mr. Flanders referred to. We sent a spreadsheet of the data in the CanVec database to Manitoba Hydro, and I believe it was to Ms. Cole, and asked them to fill in the blanks and to name things appropriately. Canada, Natural Resources Canada doesn't necessarily label everything properly. It's a huge data set. So we asked Manitoba Hydro to label things appropriately. So this was dykes, dams, levies, causeways, everything, generating stations, everything. They declined to do that.

What they did do is they produced a map. The map was the same information that's publicly available on the corporate website. It was not the level of detail that we asked them for.

THE CHAIRMAN: But nonetheless, what the proponent provided was not forwarded to Mr. Flanders?

MR. WHALEN: We didn't forward him the paper map and I don't remember a digital file. So the digital file may have been misplaced. And for that, and the confusion, I apologize.

THE CHAIRMAN: Ms. Cole, do you have a response?

MS. COLE: I do. With all due respect, the actual request came directly from Ms. Whalen Enns and not from Jared. I have the e-mail chain actually in front of me here. And I did reply to Ms. Whalen Enns and noted that we printed the map provided and labelled the infrastructure. All of the infrastructure requested to be labelled was labelled. And in addition to providing paper copy, a pdf of the map was also provided so that it could be e-mailed or placed on a website to BC.

THE CHAIRMAN: Okay. In all honesty, I'm not sure we need to pursue this all that much farther. I think that Mr. Flanders made a statement in his paper that was based on information that he wasn't aware of, so he may have felt a little embarrassed when he was challenged by counsel for the proponent.

However, you needn't be embarrassed because you weren't provided that information. You haven't made any mistakes. Obviously somewhere in the office of Whelan Enns & Associates and/or Manitoba Wildlands, some information went missing and was not provided. In all honesty, I'm not sure that it's all that relevant at this point. So thank you both and we'll move on.

MS. WHELAN ENNS: Thank you, Mr. Chair. We will check. We will have to do it after the fact, thank you.

THE CHAIRMAN: Ms. Land?

MS. LAND: I have no further questions on redirect.

THE CHAIRMAN: Thank you very much. Oh my goodness, we are ahead of schedule by about seven minutes. We will take a break in a moment

for lunch. After lunch, I believe that professors from yesterday afternoon's presentation, Al Gorman and Buckland will be returning to conclude the cross-examination. And following that, we will call the Moving Forward panel. So come back at 1:30, please.

(Proceedings recessed at 12:23 p.m. and reconvened at 1:30 p.m.)

THE CHAIRMAN: Okay, we will reconvene. And we are in still in the midst of cross-examination of Drs. Buckland and O'Gorman, and it was one of the partnership counsel who was about to go when we broke yesterday.

Mr. Regehr?

MR. REGEHR: Thank you, Mr. Chair. Thank you Drs. Buckland and O'Gorman. You switched seats, so this must be some attempt to confuse me. I have got some questions here. I was directed by my client to try and keep it short because they want to get on with their panel so they can get moving. Thanks for coming out in this rather nasty Manitoba day with all of the snow.

I'm going to take you first to, we are going to deal with some questions relating to this

report, which is pronounced Kipekiskwaywinan. I will refer to it as Our Voices and I will be quite happy if you refer to it as Our Voices.

Yesterday you stated that you had read York Factory's --

MS. CRAFT: Mr. Chair, if we are going to be referring to this, may I please provide a copy to our witness?

THE CHAIRMAN: Sorry?

MS. CRAFT: May I please provide a copy to our witnesses if we are going to be referring to this document?

THE CHAIRMAN: Of course.

MR. REGEHR: You have a copy of the report in front of you?

DR. O'GORMAN: Yes.

MR. REGEHR: Now, you have read this report in its entirety?

DR. BUCKLAND: Yes.

DR. O'GORMAN: I can't say I read every page, but I read a big chunk of it, yes.

MR. REGEHR: You have it listed on page 45 of your bibliography, is that correct?

DR. BUCKLAND: That's correct.

MR. REGEHR: Thank you.

On page 35 of your report you include a quote from the information requests, CEC round one, CEC 0035, in particular that would be page 5 of that IR. And that quote is taken in the IR as, is actually taken from Our Voices report, is that correct, to the best of your knowledge?

DR. O'GORMAN: We drew it from the IR, but it could be in turn taken from Our Voices.

MR. REGEHR: And you are aware that that IR was in relation to a question about how cumulative effects were assessed within the KCN environmental evaluation reports; is that correct?

DR. O'GORMAN: Yes.

MR. REGEHR: So, as we discussed, this quote is actually from page 72 of the Our Voices report. Do you want to check that?

DR. BUCKLAND: Yes, that's correct.

MR. REGEHR: So, as you've testified, you had read and you certainly obviously then had access to the Our Voices report. Why did you not just reference the Our Voices report directly rather than through an information request? Because the quote there that you use, where you quote from the IR rather than Our Voices, I don't believe that deals with cumulative effects. When

I was in university, I was always told to go right to the original source rather than quoting it through a secondary source. Can you explain why you did that rather than going directly to the Our Voices report?

DR. O'GORMAN: There wasn't a strategic decision. You are right, it is always best to go to the source.

MR. REGEHR: And are you aware that the quote that you've relied upon comes from the chapter in the Our Voices report which is called "Change and Damage to the Water, Land and People"?

DR. O'GORMAN: Yes.

MR. REGEHR: And you would then be aware that the purpose of the chapter in Our Voices, that particular chapter, outlines the perspective, values and knowledge of York Factory, and their insistence that these perspective, values and knowledge be respected and given equal weight?

DR. O'GORMAN: Yes.

MR. REGEHR: And since you've -- on page 40 of your report you then include a quote from Eric Saunders, which is directly from the Our Voices report, which actually that quote is from

page 3 of the Our Voices report. And you hold this up as an example of KCN members' concerns in the public involvement process.

DR. BUCKLAND: If we could have a moment to read that?

MR. REGEHR: Absolutely.

DR. O'GORMAN: Could I clarify your question. You are asserting that this is not about the public involvement program, but rather this comment came through the public involvement program?

MR. REGEHR: No. My question is that you are holding this up as an example of the concern of KCN members which were raised through the public involvement process?

DR. O'GORMAN: Through the public involvement process, yes.

MR. REGEHR: Now, you do understand that the Our Voices report was a document that was prepared by York Factory as part of its environmental evaluation, and that the public involvement process is a completely separate part of the EIS?

DR. O'GORMAN: Yes.

MR. REGEHR: You are also then aware

that the Our Voices report represents the York Factory worldview, their background, feelings, and reasons for deciding to be a partner in the Keeyask project?

DR. O'GORMAN: Yes.

MR. REGEHR: So since you have read the Our Voices report, you will therefore also have read the June 13th, 2012 preface to the Our Voices report. And I have handed that out so you didn't have to, everyone didn't have to have a copy of the Our Voices report. And it is the first, very first part of the Our Voices report. Do you have that in front of you?

DR. BUCKLAND: Yes.

MR. REGEHR: Could you read the third paragraph on the first page for me, and I will completely understand if you can't pronounce some of the Cree words in that paragraph.

DR. BUCKLAND: Okay. I can do that.

"In preparing (a long word) it has been important to us that the voices of our members come through -- as honest, varied and conflicting as they are. Many voices express anger, hurt, sadness uncertainty, and distrust with

Manitoba Hydro and hydroelectric development and demonstrate the difficulties we faced in deciding to become a partner in the Keeyask project. The introductory chapter attempts to represent the full range of opinions and feelings of our members. The reader must understand that (a long word) has been the first time our members have been able to acknowledge our thoughts, feelings and perspectives of hydroelectric development in writing. This has been an important process of healing and reconciliation for our members that we call (another long word). For this reason it is imperative to read our entire document to understand our history and experiences that lead us to support and become a partner in the Keeyask project."

MR. REGEHR: So you understand then that the quote that you cite in your conclusion to your paper, the quote of Eric Saunders, is part of an introductory chapter which sets out the full

range of feelings and opinions of the members of York Factory?

DR. O'GORMAN: Yes.

MR. REGEHR: Is that correct, you understand that?

DR. BUCKLAND: Yes, we understand, yes, that the document includes a variety of opinions expressed.

MR. REGEHR: You also understand then, that from this preface, that the Our Voices report is to be taken as a whole and read as a whole?

DR. O'GORMAN: As any document would be, yes.

MR. REGEHR: And that's stated explicitly in the preface, the paragraph that was just read.

DR. O'GORMAN: Yes.

DR. BUCKLAND: What we have done, Mr. Chairperson, in our report is to try to represent, and I think we were saying this yesterday, the enormity of the decision that you are facing regarding the Keeyask dam. And that was why we were drawing on various quotes from people who are articulating concerns.

MR. REGEHR: Is the holistic approach

of a First Nation conducting its own evaluation -- I'm going to sound like Martha Stewart -- but a good thing?

DR. BUCKLAND: I am sorry, I couldn't hear the final part of the question.

MR. REGEHR: Is the First Nation approaching, or conducting its own evaluation in a holistic approach, is that a good thing?

DR. BUCKLAND: Absolutely.

MR. REGEHR: So you also understand that the Our Voices report reflects a great deal of Aboriginal traditional knowledge from York Factory?

DR. BUCKLAND: Definitely.

DR. O'GORMAN: Yes.

MR. REGEHR: And do you see value in gathering and presenting Aboriginal traditional knowledge and the First Nation perspectives as part of an environmental assessment?

DR. BUCKLAND: It is very valuable, and both the pros and cons that are represented in the document, I think, particularly from a community development framework it is important to amplify those voices. And that's what we are seeking to do. And so in parts of the report it

becomes very clear that members of the community felt that the project was inevitable and, therefore, the decision was very difficult. And I think that's what we were trying to represent in our report.

MR. REGEHR: I'm going to suggest to you that, given the approach York Factory took in writing the Our Voices report, that by taking one quote out and stating that it is representative of the concerns of members from all four Keeyask Cree Nations is inaccurate?

DR. BUCKLAND: What we tried to do was to identify voices of concern, and to do that we described those points and then we used quotations to better represent them, to more clearly state them.

MR. REGEHR: If you were informed that York Factory wanted Our Voices to be an open and honest account and they didn't want to gloss over anything, even in the event there were conflicting statements, that would be a positive thing, wouldn't it?

DR. BUCKLAND: I think the document as a whole is a very positive document, it is a very important contribution. And it is a part of the

entire process of the Keeyask project, and I think it represents these divergent views that are important to look at very carefully.

MR. REGEHR: And as well, the ability of Aboriginal traditional knowledge holders to be able to say what they wanted and how they wanted, that would be a positive thing as well?

DR. BUCKLAND: Definitely.

DR. O'GORMAN: Of course.

MR. REGEHR: Yesterday, Dr. O'Gorman, you testified that you were aware of new Federal legislation regarding the requirement of First Nations to produce annual audits?

DR. O'GORMAN: Yes.

MR. REGEHR: Yesterday you indicated that you had read the York Factory First Nation adverse effects agreements?

DR. O'GORMAN: Yes.

MR. REGEHR: And it is referenced at page 45 of your bibliography as well?

DR. O'GORMAN: Yes.

MR. REGEHR: And if you would have read the adverse effects agreement, you would have read schedule 3 to the adverse effects agreement?

DR. O'GORMAN: I can't remember

reading that particular part of the adverse effects agreement.

MR. REGEHR: If you would have read schedule 3, you would have been aware that York Factory is required to provide annual reporting to its members on the offsetting programs, consult its members on future offsetting programs, as well as provide an annual audit on the adverse effects funds?

DR. O'GORMAN: And that's for York Factory, right? That's for one KCN, not all four of them.

MR. REGEHR: Yes. But you would have been aware that York Factory would have been under that requirement?

DR. O'GORMAN: So, as I just mentioned, I'm not sure I actually read that appendix, but our comment in the paper was more general, that for all four KCNs that requirement of reporting and annual auditing is not present.

MR. REGEHR: So the statement you made at page 38, the bottom of page 38 of your report, about the lack of audit requirements was a general statement, and did you -- I don't know, did you ignore, did you fail to note that York Factory in

particular has an audit requirement for its offsetting programs and adverse effects agreement?

DR. O'GORMAN: I failed to note that in the case of York Factory, yes.

MR. REGEHR: I just have a few more questions. You expressed concerns about the capacity of the Keeyask Cree Nations in dealing with Manitoba Hydro. Is that correct?

DR. BUCKLAND: The concerns that we identified, one of the main concerns was the asymmetry of power and wealth, frankly, between the Partnership -- I am sorry, the Keeyask Cree Nations on the one side and Manitoba Hydro on the other, and the question of -- a common situation in a development setting is where a relatively powerful partner can have disproportionate control over an endeavor, a project.

MR. REGEHR: So, you do have concern about the capacity of the Keeyask Cree Nations to negotiate with Manitoba Hydro, to be able to deal with Manitoba Hydro?

DR. BUCKLAND: I have concern where there is an asymmetry of power and there is not a clear deliberate way by which to balance that power.

MR. REGEHR: So do you have specific concerns with regard to the Keeyask Cree Nations?

DR. BUCKLAND: The specific concerns would be that Manitoba Hydro is a very large public utility, and the Keeyask Cree Nations are smaller communities, and so there is an asymmetry there. And what can happen is either explicitly or implicitly, in this kind of situation, can happen and has happened in developing context, is that the larger actor is able to control outcomes.

MR. REGEHR: And so you are aware of the 1977 Northern Flood Agreement and that York Factory is a party to that agreement through the Northern Flood Committee?

DR. BUCKLAND: Yes.

MR. REGEHR: And you would have also been aware of the 1995 Northern Flood Implementation Agreement in which York Factory is a partner with Manitoba Hydro, the Province and the Federal Government?

DR. O'GORMAN: Yes.

MR. REGEHR: And you also are aware that negotiations on Keeyask commenced in 2001?

DR. O'GORMAN: Yes.

MR. REGEHR: And that York Factory was

a participant in the development of the environmental assessment process for ten plus years?

DR. O'GORMAN: Yes.

MR. REGEHR: And so if you are aware of this, then you are aware of the expertise built up within the leadership and the staff at York Factory in dealing with Manitoba Hydro and Crown parties?

DR. BUCKLAND: There is no doubt that through these experiences capacities have been built up. The fact remains, though, that there is a major asymmetry between Manitoba Hydro on the one hand and the Keeyask Cree Nations on the other hand, in terms of power, the number of resources that are available to them, the number of experts available to them.

MR. REGEHR: On page 36 of your report, the second paragraph, again dealing with the issue of capacity building, you seem to suggest that the leadership of the KCN will act in a way leading to, and I quote:

"...a skewed manner in which few people will benefit."

Are you suggesting that the leadership

would act in their own interests and not the interests of the overall nation?

DR. BUCKLAND: Well, from a community economic development perspective, a healthy community where both residents and leaders have strong and growing capacity, that's the strongest community, because then leaders are held to account and residents can hold them to account. So it is really the sense of more of a synergistic. So it is going back to that community economic development model and saying that that would suggest the capacity of everyone being raised as the healthiest kind of -- sorry, would lead to the healthiest outcome.

MR. REGEHR: Yesterday you confirmed you hadn't done any field work in developing this report. That's correct, is it?

DR. BUCKLAND: That's correct.

MR. REGEHR: So you didn't have any discussions in this manner with the leadership of York Factory or any of the other KCN?

DR. O'GORMAN: No. So along this line of questioning, as well as the questioning on this issue yesterday, we keep making the same point. And that's that we are looking at this from a

perspective of a community development lens. And when we looked at the JKDA and all of the documents produced by the Partnership, we didn't see any sort of training, if, for example, all of the individuals from York Factory that were involved in past negotiations with Hydro received training, right? So we are saying in general for a project of this size, that type of training should be inbuilt, not only for individuals in terms of post secondary education, but also for leadership. We are not making any statements that we are aware of idiosyncratic aspects of leadership for any of these KCNs.

MR. REGEHR: I just have a couple more questions for you.

On page 36 of your report, at the top, again dealing with capacity building, you make a statement which starts:

"First, much of the education needed to engage in this level of organization would be at a post secondary level, yet post secondary education is not locally available and so would involve heavy costs in the community, and if community members

leave the region for post secondary education, there is a risk that they may not return to the community. Moreover, most post secondary education does not effectively include the indigenous worldview within its programs of study. If an essential goal of the Keeyask project is to uphold indigenous worldviews, then post secondary education could work against this goal."

Wouldn't you agree this statement is somewhat contradictory?

DR. BUCKLAND: There are very few programs currently, I think, in the post secondary level that do encompass the indigenous worldview. And so the program I was working in last year, the Masters in Development Practice Program at the University of Winnipeg is endeavoring to do that. That would be an example. There aren't very many that are explicitly working at that. So, yeah, I agree it is a nuanced point, if I could put it that way, that this type of program is rare, there are some out there, but they are not readily available.

MR. REGEHR: So is it your view that the York Factory leadership or members should not seek out education and training programs for fear that they will forget hundreds of years of Aboriginal traditional knowledge?

DR. BUCKLAND: No, no, that's not our point. We are simply, I guess we are identifying post secondary education as an important resource. And there are those programs that do encompass an indigenous worldview that I think would be more helpful than a program that does not encompass an indigenous worldview.

MR. REGEHR: So do you believe that Aboriginal people are incapable of gleaning from post secondary education and training what is useful to them and what is not?

DR. BUCKLAND: No, I don't believe that. I believe that indigenous people, like all people, have the right to choose the form of education that they want. And that's their choice, individually, collectively. And I guess what I'm -- in a sense there is maybe a bit of a critique of post secondary education that there aren't enough post secondary programs that do encompass an indigenous worldview. I mean, the

University of Winnipeg is actually, I think, ahead of the -- ahead of this as compared to some other universities, and they have done a lot of work in this area, including the MDP program. But there aren't that many of that nature.

MR. REGEHR: On page 37 of your report, you have suggested that one of the principles is that a more trusting relationship should be established before the Keeyask project should be attempted; is that correct? Am I summarizing that correctly?

DR. O'GORMAN: I would rephrase that as saying that there is a lack of trust right now and, therefore, engaging in the Keeyask project to some extent represents a leap of faith.

MR. REGEHR: I want to again refer you to the preface that I handed to you, which is from the Our Voices report. And if I could get you to flip to the second page, and the last paragraph? Could one of you read that paragraph for me, please?

DR. O'GORMAN: Sorry, second page, which paragraph?

MR. REGEHR: Last.

DR. O'GORMAN: "As we look to the

future we want to work with our partners for the entire life of the Keeyask project to obtain and achieve respect for our Cree culture and self-determination, produce sustainable tangible benefits for our First Nation, and continue to build trust and a meaningful partnership with Manitoba Hydro and the other Keeyask Cree Nations. If we can achieve these objectives, then the Keeyask project and partnership will make a significant contribution to fulfilling our hopes and expectations to our current and future generations."

DR. BUCKLAND: Mr. Chairperson, if I could just add another comment from that document, on page 26, and not to negate the preface, that's very important, but just, I'm sorry, on page 24.

THE CHAIRMAN: Of your report?

DR. BUCKLAND: No, of this document that's being referred to.

THE CHAIRMAN: Our Voices?

DR. BUCKLAND: Yes, at the bottom of

page 24, the statement is:

"Many of our community members are equally torn with our decision to become a partner because of our past history of Manitoba Hydro. We have come to know and respect many individuals working for Manitoba Hydro in this process, but some of our community members do not trust Manitoba Hydro as a corporate entity."

So just to reinforce that we understand the preface is very important, it is summarizing things, and the document itself contains a variety of views on that issue.

MR. REGEHR: And so you can see from the preface at the bottom it is signed by five individuals?

DR. O'GORMAN: Yes.

MR. REGEHR: Thank you.

And if I told you that was the current sitting Chief and Council of the York Factory First Nation, all five, you wouldn't have any reason to dispute that with me?

DR. O'GORMAN: No.

MR. REGEHR: So you would agree that

if the leadership of a First Nation feels that it can build trust and a meaningful partnership, and those are the words that are used, that this would be a positive thing?

DR. O'GORMAN: Yes.

MR. REGEHR: Thank you. That's all of the questions I have.

THE CHAIRMAN: Thank you, Mr. Regehr, Mr. London?

MR. LONDON: Thank you, Mr. Chairman.

So since we are all academics, let's treat this as a faculty council meeting, we are going to have a difference of opinion, we are going to get really antagonistic, and at the end of it, we are going to state the best interests of our students and be friends.

So, let me start with a couple of just factual matters. One is, yesterday when you were doing the income projection -- the revenue projections and you used the 1.9 and 2.5 numbers under the preferred option, what did you -- did the actual ranges that you predicted come from the NFAT report or did you calculate those?

DR. O'GORMAN: I calculated those.

MR. LONDON: What did you use as

revenue definition?

DR. O'GORMAN: So it would depend on in the case of -- well, first of all, if we are talking about low financial performance, I assumed adjusted gross revenue of zero dollars.

MR. LONDON: You used adjusted gross revenue?

DR. O'GORMAN: Yes.

MR. LONDON: Can you just tell the panel what adjusted gross revenue represents?

DR. O'GORMAN: So adjusted gross revenue is the total revenue of the project from the sale of energy, minus financing costs as well as operating and maintenance costs.

MR. LONDON: So it is a sweetheart definition of revenue against which that percentage is applied?

DR. O'GORMAN: Exactly.

MR. LONDON: Much to the benefit of the Cree Nations?

DR. O'GORMAN: Sorry, I'm not sure what you mean by that?

MR. LONDON: Well, if you used actual revenue that you would use in an audited statement, their returns would be quite a bit

lower than if you back out depreciation and interest and all of the other costs that are backed out of the adjusted gross revenue number.

DR. O'GORMAN: The only reason why I used adjusted gross revenue is because that is the measure of revenue that's used in the definition of the returns. In the case of preferred units, then it would be the preferred participating distribution which requires that you use adjusted gross revenue.

MR. LONDON: I understand. But in a normal commercial transaction, you wouldn't use an adjusted gross revenue, you would use the profit or loss that's determined under the audit, and the partners would get a certain percentage of that income. And you wouldn't back out all of those expenses and all of those major, major deductions in computing the amount against which you are applying the percentage?

DR. O'GORMAN: Yes.

MR. LONDON: So it is a sweetheart deal for the First Nations?

DR. O'GORMAN: I'm not sure what you mean by sweetheart deal?

MR. LONDON: What I mean is that I sat

at the table for ten years and helped negotiate that, and I thought that we did a pretty good job at the end of it all in getting to that number.

DR. O'GORMAN: So the distribution that will accrue to the KCNs will depend on the proportion of equity that they choose to hold, and it will largely depend, in the case of preferred units, on the level of adjusted gross revenue. The higher would be adjusted gross revenue, the higher would be the distribution, which in turn will benefit the KCNs. So it all depends on the adjusted gross revenue.

MR. LONDON: That's right. And the adjusted gross revenue is a non-commercial like term that's used in this deal, because these are First Nations that are being dealt with in this asymmetrical relationship with Hydro, unlike what would happen in the general commercial world. Have you ever negotiated a deal like this in the commercial world?

DR. O'GORMAN: No.

MR. LONDON: No. So if I tell you that what normally would happen is there is an audited statement, there is a number, and the partner gets a percentage of that number, you

would accept that?

DR. O'GORMAN: Yes.

MR. LONDON: That's not the case here. You take the audited statement number, you deduct a whole number of things that normally would reduce the amount of revenue against which you take the percentage, and that's what the First Nations get?

DR. O'GORMAN: Right.

MR. LONDON: Okay.

Secondly, we just had a conversation about adverse effects agreements and your issue of transparency and whether or not there is disclosure. And you said under the York Factory agreement it was pointed out to you that there are disclosure requirements. I would suggest to you that those disclosure requirements are present in all of the agreements, all of the adverse effects agreements, notwithstanding your reticence to accept that, it is in article 6 of all of them there are -- I could pick any one of the agreements, but they come under annual program budgets and annual program reports, and they come under requirements to disclose annual program budgets for offsetting programs, they come with

annual program reports and annual program budgets, and all of those need to be disclosed to the Cree Nation, to the membership I should say, every year. And in most cases they can only be done in consultation with the memberships?

DR. O'GORMAN: Is the second portion of what you just said regarding consultation, is that also in every adverse effects agreement?

MR. LONDON: I believe it is.

DR. O'GORMAN: Because that point that we made was two-fold. It was, first of all, it is a normal process to have an audited financial statement given to members, and second of all that members are consulted. So both of those points are very important to us.

MR. LONDON: So, it must be obvious to you by now, through the cross-examination by Mr. Roddick and Mr. Regehr, that the way in which the First Nations are receiving your report and your evidence is that you have focused -- you have made some very good positive statements about the program, it is an exceptional program, it is different than any of the other programs before, Hydro is to be commended for negotiating that. That's all correct, isn't it?

DR. O'GORMAN: Yes.

MR. LONDON: But then what you have done is you have picked all of these quotes out, and in particular your meeting with the Concerned Citizens of Fox Lake, and you emphasized those quotes, both in the written paper and in your presentation yesterday, or the day before, I have lost track of the days. And it gives the impression to us, or to our clients, that there is a negativity that's built into that, that's overemphasized. Can you understand how they would come to that conclusion?

DR. BUCKLAND: Well, our intention is not to create negativity. Our intention is, and I think we said this at the beginning of our presentation yesterday, was to constructively contribute. And with the underlying understanding that this is a huge question, a huge issue, a complex question, and so it is important to, I think, unpack these issues and look at them very carefully.

MR. LONDON: Sure. But you would agree with me, both from your experience and academic training and what you do in the classroom, that the intention that you have when

you deliver a statement is not really the important thing. The important thing is, is that statement made in a way which will be received by your audience in a way that is understandable, comprehensible and acceptable?

DR. BUCKLAND: Well, we certainly intended, in writing the report, to be clear and understandable, as with our presentation, that's certainly our intention. And so if there is something that's unclear, please, we would like to, you know, to clarify that.

MR. LONDON: Well, on slide 25 of your presentation yesterday, you can go to it if you want, but it says important segments of the Keeyask partner communities that do not agree with -- the important segments of the Keeyask Partner communities that do not agree with the project going forward.

What are those important segments of the community and how did you determine who they were, what their numbers were, what their statistical validity were?

DR. BUCKLAND: I mean, the primary segment are those people who participated in the referendums and voted against the support for the

project.

MR. LONDON: In the case of Fox Lake, you are talking about six or seven per cent of the population, the voting population, or less? I don't have the numbers.

DR. O'GORMAN: We can bring up the numbers for the referenda. It might take a minute or so.

DR. BUCKLAND: Here, I actually have it printed out here.

DR. O'GORMAN: Okay. So of the four KCNs, the no vote in Tataskweyak was 39 per cent for the JKDA, and 38 per cent for the AEA. In War Lake, 6 per cent no vote for the JKDA, and 12 per cent for the AEA. For York Factory, the no vote was 17 per cent -- sorry, we calculated -- so 17 per cent against the JKDA and 15 per cent against the AEA. And finally for Fox Lake, roughly 8 per cent voted against the JKDA, and 7 per cent against the AEA.

So, yeah, in some communities the no vote was larger than others.

DR. BUCKLAND: And just to mention, in terms of the population numbers that I have, which come from the community websites and some other

sources, the Tataskweyak Cree Nation is the largest of the four. And my number, which I certainly would be open to correction, of its population is 3,588, whereas York Factory is 1,100, Fox Lake is 1,100, and War Lake is 244.

I submit those as estimates, Mr. Chairperson. I have not collected those carefully. But just to say that the TCN no vote of 39 per cent for the JKDA is coming from a larger, relatively larger community.

MR. LONDON: Have you attended many band meetings where votes are taken?

DR. O'GORMAN: No.

DR. BUCKLAND: No.

MR. LONDON: So, Karen Anderson, early on in her testimony here, said that more often than not at those meetings, if someone doesn't bother to vote, it is taken that that person isn't necessarily opposed to it. She wouldn't say that the person was in favour of it, but it doesn't indicate opposition. So all of those people that you just mentioned who didn't vote --

DR. O'GORMAN: No, these are people that voted against the JKDA and against the AEA.

MR. LONDON: I understand, but Dr.

Buckland went on to give me the population numbers, and drew a conclusion from the population numbers of the number of people who voted. So if you took that as a potential explanation, that is that people who don't vote in those communities are not opposed to whatever the proposition is.

DR. BUCKLAND: Well, I think there is the two issues. There is the issue of the number or percentage of people who voted against the two decisions. And then as you were just pointing out, there is also the question of the percentage of people who didn't vote. And I think we talked about this yesterday, and it is really hard to know what was their motivation, did they support, did they not, we really don't know.

MR. LONDON: We really don't know, but what you are saying in -- the conclusion that you draw in the slide is that important segments of the Keeyask partner communities do not agree with the project going forward.

DR. BUCKLAND: Based on --

MR. LONDON: Without parsing those data, that's the overall conclusion that you come to?

DR. BUCKLAND: The conclusion that we

come to is that there is a minority of the communities who voted against support.

MR. LONDON: So in making that statement, and in the answers that you are giving now, I gather that you met with some representatives of the Concerned Citizens of Fox Lake?

DR. BUCKLAND: Yeah, we met with some members, yes.

MR. LONDON: Here in Winnipeg, I think you said?

DR. BUCKLAND: Yes, correct.

MR. LONDON: Because you referenced them three or four times in the report, they obviously made an impact on you?

DR. BUCKLAND: Well, again, because of resource and time limitations, we weren't able to do field research.

MR. LONDON: So you took them as a proxy?

DR. BUCKLAND: No, we did not take them as a proxy. I mean, to do quantitative research would require a full survey and we would have to use, you know, careful statistical design. There are other options there, like a mixed

methodology which can lead to some also very important insights. We relied, in terms of our research, primarily on the Keeyask documents, which there are many. I mean, there are many documents, and we did have the opportunity to speak with the Fox Lake Concerned Citizens because they were in Winnipeg.

MR. LONDON: So tell me a little bit about that meeting? Who arranged it? How was it arranged?

DR. O'GORMAN: We requested it.

MR. LONDON: You requested it of whom?

DR. BUCKLAND: The Public Interest Law Centre.

MR. LONDON: So you called the Public Interest Law Centre and said, we would like to talk to the Concerned Citizens of Fox Lake?

DR. BUCKLAND: We heard that they were in town, so we requested --

MR. LONDON: How did you hear that?

DR. O'GORMAN: From the very beginning when Jerry and I agreed to do this research, we said, one thing we want is to speak to individuals that are involved, that are from these communities. And we found out that those people

were coming to Winnipeg, and so that fulfilled our desire to meet with them.

MR. LONDON: Who was present at the meeting?

DR. O'GORMAN: I don't know if we are allowed to mention that.

MR. LONDON: Tell me the number of people who were present at the meeting?

DR. O'GORMAN: Three people were there.

MR. LONDON: How many of those were there from the community, from Fox Lake community, or were there advisors there as well, or was there an advisor there as well?

DR. O'GORMAN: There was an advisor there, yes.

MR. LONDON: So, an advisor and maybe a couple of people from the community?

DR. O'GORMAN: Yes.

MR. LONDON: Do you know how many people, when they made the application for standing at this hearing, do you know how many people were expressed to be members of the Concerned Citizens Group?

DR. O'GORMAN: No.

MR. LONDON: Would it surprise you if I told you there were five?

DR. O'GORMAN: I don't have any priors on that so...

MR. LONDON: Would that be impactful in any way?

DR. O'GORMAN: I think we can get caught up in numbers, and obviously numbers are important, right. A majority has passed the approval of the Keeyask project in each KCN, but we were affected by their opinions because they were so strong, and the reason why they have joined this group of concerned citizens is because they are extremely concerned. So, yes, we are not talking about hundreds of people, but their views were very important to them and to us as objective researchers.

DR. BUCKLAND: If I could just add, Mr. Chairperson, one of the very common methodologies in research today is called a mixed methodology, and that involves both qualitative and quantitative research methods. The purpose of mixing the qualitative, more the survey, with the quantitative, which could be more of an in-depth conversation, is because it really enriches the

researcher's understanding of the situation on the ground. So this is a valid -- mixed methodologies are a valid form of research. I'm not suggesting that the meeting with the Fox Lake concerned folks were a part of a complete mixed methodology. We would have liked to have had the time and resources to do more. But it was an opportunity that we combined with the documents that we have from the Keeyask Partnership to gain insights into the situation.

MR. LONDON: They reinforced the views you were forming from the documentation?

DR. O'GORMAN: Not every view, no.

MR. LONDON: Some views?

DR. O'GORMAN: As is evident in our report as well as our presentation, we have compliments for the project and we have concerns. And there were some concerns that were strengthened by that meeting, and there were others that were completely irrelevant.

MR. LONDON: So if I were to, if you were to have met with some other members of the community -- let me preface this. In your presentation yesterday you went beyond the literature and you went beyond that meeting, and

anything that you had done before, and you pulled some quotes out of the testimony that's been given here, and included those in your paper, for example, Robert Spence's piece. By the way, do you know if that was Robert Spence's piece or on whose behalf he delivered it? Did you know that that wasn't his piece?

DR. BUCKLAND: Can you clarify?

THE CHAIRMAN: Mr. London, when that statement was made in this room, it was made by Robert Spence, and he said he was Robert Spence, and he didn't say he was speaking on behalf of anybody else, so...

MR. LONDON: He did initially, sir. It doesn't matter, I will withdraw that.

So, I just want to redo a couple of quick comments, and tell me what this would have done in the event that you had pulled these out from the testimony that's been given here, just as did you with Spence's commentary.

So at the outset of this, Walter Spence said:

"I simply want to say this, we trust that this Commission will support our rights as the first peoples in the

territories in which Keeyask will operate so that we, finally, may benefit from use by others of our resources which for so long have been the monopoly of non-indigenous people. Our people have lived in the area of the Keeyask project since time immemorial. We know the environment and its contours, features, strengths and weaknesses. It has nurtured us in many ways and it is a part of who we are. Aski and the people of Fox Lake have undergone change over the past 60 years and we have experienced this together. We have always relied...", I would like you to pay attention to this, please. "We have always relied on Aski to nurture us, and through this Keeyask project we have asked once again she do so. We also ask that we as Fox Lake and our partners respect the fact that Aski will again undergo significant change to provide us with a means to survive and thrive as a people."

I could read a couple more like that as part of the testimony.

So if you had listened to that when you were meeting at the front end of this, do you think that would have altered the way in which you did your report?

DR. BUCKLAND: What we do in a report is we seek to apply a community development framework lens to understand the Keeyask project. So what we are trying to understand is from the community's perspective. And we conclude that there are strengths and there are weaknesses, and I think the quote you shared certainly presents the challenging dimension of the decision, and in the end supports it.

MR. LONDON: But my question was, you said that you were influenced at the outset by what you heard from the concerned citizens. And by the way, Fox Lake is very clear that it supports the concerned citizens, it is absolutely supportive of their right to dissent and to be critical. It relies on the vote that took place at the band as the appropriate measure to pay attention to. So this doesn't have anything to do with content, it has to do with methodology. You

didn't do a random -- what was the term you used, Dr. Buckland?

DR. BUCKLAND: Randomized survey.

MR. LONDON: So you used that piece. If that had been the information that had come out at the front end and you weren't doing a randomized sample survey, it would have altered the way in which you perceived the other comments that had been made, would it not?

DR. BUCKLAND: Well, I think what we have tried to do is present the strengths, which I think are clear, and they are reflected in the Keeyask documents. But from a community development perspective, what we are trying to do is amplify the voice of the relatively voiceless. So that's why we would use the quotes for the challenges.

MR. LONDON: But when you say that you are representing the voice of the voiceless, you are making an assumption of the prominence of those voices, those voiceless people in the community, notwithstanding the votes that were taken. Is that right? It wasn't -- let me put it another way -- they weren't voiceless, there was a vote taken. There were thousands of meetings that

took place, and consultations. Everyone had the opportunity to present his or her perspective. Many, many people did, whatever those numbers are. To say that there is a voiceless group there seems to me to be drawing a conclusion that you can't possibly have come to without having done the investigation or the interviews with the people yourself in the communities.

DR. BUCKLAND: Well, I think what I'm saying is that my reading of the Keeyask material is representing the successes. And I think I mentioned yesterday, you know, looking into Manitoba Hydro's public involvement program, the three rounds that they did with the communities early on, and this question of how it was framed to the communities, and the sense that what Hydro naturally does, as a large organization, is to put, you know, in quotation marks, put its best foot forward. And that's the natural action of a large organization. But what it tends to do is it understates the down side.

And so whereas we feel that the Keeyask documents state very clearly the successes -- and once again I want to affirm that we believe that the Keeyask model is an

improvement over the past projects -- the point is to say that there are weak -- we have identified some weaknesses.

MR. LONDON: I appreciate that, and by the way I appreciate your report and view. This is -- I know you are trying to do your best in the circumstance. What I'm having a bit of difficulty with is what is -- let me ask it this way. On page 40 of your document you say that this study has unearthed -- let me pull out the quote. The first line of the first full paragraph:

"Regardless of this progress, this study...",

this study, I say again this study,

"...has unearthed substantial evidence regarding the harm caused by past hydroelectric projects on indigenous and local communities."

So taking that statement, and what you have just said to me about maybe the positive side, only the positive side was being presented, what is it do you think that you have unearthed that the people who have lived there and lived through all of these projects, and suffered under all of these projects, and know the ramifications

of under all of these projects, and have expressed themselves over and over again about the damage that was done by this process, what is it that you learned, what is it that you unearthed that the people didn't already know?

DR. BUCKLAND: Well, I personally learned that as a Winnipeger and a southern Manitoban, I benefit regularly from electricity that's generated in another part of the province, in a way that, at least in the past has been harmful on some of those communities. So I guess what I think, I mean, again, as a Winnipeger --

MR. LONDON: You didn't mean unearthed for the population that lived there, they already knew that?

DR. BUCKLAND: Absolutely.

MR. LONDON: You meant unearthed for yourself?

DR. O'GORMAN: No. We had a responsibility on behalf of the Consumers Association of Manitoba to research this issue as objective researchers, and we came up with a lot of evidence of the harmful effects of past Hydro projects, and brought that knowledge to bear on our analysis of the potential harm or benefits for

the KCNs in the case of Keeyask. We are not saying that this is the first time anyone has ever unearthed such evidence, by no means are we saying that.

I just wanted to point out, because you and Jerry were discussing some of the use of our quotations. When we use quotations, as we mentioned yesterday, we are using them to bring in other individual's voices that say things that we couldn't possibly say in such an eloquent way. We are not saying, by keeping those quotations in our paper, we are not saying those are the only quotations that we have read, nor are we saying that they represent the majority view. We have talked about the numbers that objected to the project, and we are saying that those people, when we use quotations, those people have put that piece of information in a much more eloquent way than we could ourselves as non-indigenous, non-KCN members.

MR. LONDON: But without doing any of that research, all you would have to do is read the evaluation reports of the Cree Nations to get all of the matters that you just raised, all of the problems that you have just raised, all of the

fears, all of the concerns, it was already there. They all knew that. They all participated in those reports en masse. And they came to the conclusion at the end of it that this project should go ahead, this project was a good project, it was a way in which they could ensure the future of their young.

DR. O'GORMAN: A majority of individuals in each KCN voted to approve the Keeyask project, but a minority of individuals did not participate. And as we have emphasized before, we don't know what that means. We don't know if that means they approve of the project or they disagree with it, or they don't have an opinion.

MR. LONDON: But you said -- sorry.

DR. O'GORMAN: Another minority of individuals voted against it, and that is a substantial portion of the population in Tataskweyak. We think, as researchers, as academics, you must always not only read the material at hand, but you should also read secondary sources. That's our job. And that's exactly what we did. We looked at the policy literature. We looked at the literature of

Manitoba Hydro. We looked at the literature in non-peer reviewed sources. And we came to conclusions that are represented in this paper. That was our job.

So we, by no means, are trying to replace the voices of Keeyask Cree Nation members. We are trying to provide our own objective analysis.

MR. LONDON: You are trying to impose the objective analysis of two people from the dominant society on all of the comments and all of the commentary and all of the decisions that were taken, as recorded by their own documents, in the evaluation reports, which was the major part about this project is that it had two streams in evaluation.

DR. BUCKLAND: Well, I think that part of our understanding of this hearing process is that the Commission has the responsibility to look at this big project and, you know, say yea or nay. And this is a project that has Manitoba wide implications. And so what we found out -- I agree with what you are saying. The evaluation reports from the Keeyask Cree Nations are very important. How many people in Winnipeg and other parts of

Manitoba know about these historical devastating consequences of dams, and how this new model -- I mean, it is a very important step that Manitoba Hydro with the Partnership is taking with this new model, and we feel it is very important to understand the intricacies of it.

MR. LONDON: So maybe I misunderstood. I thought you were trying to bring forth a notion that the First Nations people didn't understand or maybe were voiceless. What you are telling me now is that the people that you were concerned about were not the First Nations people, but the rest of the people in the Province of Manitoba?

DR. BUCKLAND: No, we've never said that we didn't think the First Nations people didn't understand. We believe fundamentally that they understand. But we understand that our work was to be submitted to the Commission, and they are making this decision from a Manitoba wide perspective. So our hope was that the report would contribute to their understanding of this situation.

MR. LONDON: An understanding that they wouldn't have got just by reading the evaluation reports of the First Nations?

DR. O'GORMAN: No --

MR. LONDON: What is it that you added to it?

DR. O'GORMAN: We have added the broadest literature review that we could have done with the time and resources that we were given, which in turn has added a historical component in section 3.3.1, which talks about harm done to indigenous communities, not only in Manitoba, but also in other regions such as Northern Quebec, as well as B.C. and abroad.

In section 3.3.2 we discussed traditional livelihoods as a more general phenomenon in hydroelectric development relative to just in the Keeyask Cree Nations. So we broadened the analysis.

MR. LONDON: You broadened the analysis to a generic analysis rather than one that was specifically restricted to these communities?

DR. O'GORMAN: With respect, we did refer to the specific communities and some of the voices, as we have been discussing, within our report as well.

MR. LONDON: But the literature review

you said had to do with other provinces, other places. Are you suggesting that there is a homogeneity between all the indigenous people everywhere in terms of what will and will not affect them?

DR. O'GORMAN: Definitely.

MS. CRAFT: Mr. Chair?

THE CHAIRMAN: Ms. Craft?

MS. CRAFT: I wonder if we are not straying into closing argument on the weight this report might be given, so I have some concerns about that, and I would object to this line of questioning.

MR. LONDON: That's fine. I would never ever, ever doubt, Ms. Craft. I'm prepared to stop, I think the point is made.

THE CHAIRMAN: I was about to note that you were probably asking the same question in different ways for about the third time at least.

MR. LONDON: It was a parallel to the report.

THE CHAIRMAN: So do you have any more cross-examination, Mr. London?

MR. LONDON: Thank you, doctors. I'm done.

THE CHAIRMAN: I have no idea what order we are at for the participant cross-examination, so we will start at the top of the list. Manitoba Wildlands?

MS. WHELAN ENNS: Thank you, Mr. Chair.

I have some questions for you that are from your oral and your slide presentations yesterday, and also a couple that have arisen during cross-examination.

Have you, in your analysis and in your research, had reason to review the Wuskwatim PDA or make any comparison between it and the JKDA for Keeyask?

DR. O'GORMAN: Yes. Not in a lot of detail, but on the financial arrangements, yes.

MS. WHELAN ENNS: Is there anything of significant difference in the financial, if that's the area that you looked at?

DR. O'GORMAN: Yes. The main advantage over Keeyask relative to the Wuskwatim financial arrangement is the existence of a preferred equity option, which ensures that the KCNs are able to have more stable, more -- a safer financial option relative to the Wuskwatim

arrangement.

MS. WHELAN ENNS: Thank you.

Did you in your research have any reason to also then review and/or look at other instruments, for instance, like IBAs, or other agreements where First Nations are partners in significant projects? Again, did you make any comparison?

DR. O'GORMAN: Not in a lot of depth, no.

MS. WHELAN ENNS: Thank you.

The next question has a little bit to do with something that we are all learning as we go through the days in the hearings, and that has to do with the life of the Keeyask project. And I think this is a CED question, but you are best able to decide between the two of you who answers. And that is, we are thinking in terms and learning in terms of hundred year age, or life time for the Keeyask Generation Station. That's five generations. And I want to ask you then in terms of CED principles, what we know now because we are in current time, whether you have any cautions, visions, or recommendations in terms of five generations of the community members in the KCNs,

and how -- things they might in fact anticipate along the way, both CED, and if you will, financial things that may in fact matter. And this question goes to both benefits and risks.

DR. O'GORMAN: Sure. We don't have a clicker for our presentation. Okay. Could you go to slide ten, please?

So thinking about a 100 year life for the project, if we look at these estimates, so the first segment of the table concerns construction income, which is roughly an eight year period. And then the second section is for the operating period of the project, but it should be noted that the operational labour income that's been estimated at $19.7 million per year, that only lasts for 20 years. So if you remove that $20 million from the annual illustrative benefits for the project accruing to the KCNs, you get roughly 6 million to $8 million per year over the long term.

So one concern that I have with regard to 20 years and onwards into the 100 year life of the project would be the loss of those operational jobs.

MS. WHELAN ENNS: Or, if I may, the

uncertainty?

DR. O'GORMAN: Right.

MS. WHELAN ENNS: So the dam will be operating, in theory, so the operational jobs, or are you pointing to commitments that might not go past the 20 years?

DR. O'GORMAN: That is definitely a 20 year commitment. So my concern stems from the fact that there is no target for operational jobs in the 21st year and following that year.

MS. WHELAN ENNS: Thank you.

This is I think a CED question. We are also then learning and working on something that's primary in the mandate for the CEC proceedings and hearings, and that is, of course, that the sustainable development principles guidelines of Manitoba, and Manitoba Hydro's own principles are part of those discussions.

So I wanted to ask you whether there are similar principles or parallels, if you will, between what you have been identifying as CED principles and practices, and what is emerging academically, and also in practice in terms of sustainability and sustainable development principles. Are they completely different? Are

there bridges? Are their similarities? Should they both be happening?

DR. BUCKLAND: Yeah, I think at its most basic level sustainable development and community development are areas of study and practice that are rooted in principles. They are normative studies. They are not positive in the scientific sense. So they are rooted in particular principles. Then there is overlaps between the two.

And I think that a lot of the community economic development literature is concerned, and growing increasingly concerned with environmental issues. And the sustainable development approaches are certainly sensitive to community based interests and goals. So I do think there is considerable overlap between the two.

I don't want to exaggerate. I mean, they are two separate areas of study, but certainly there are common principles. And so that's why in our framework we placed valuing of community and environmental interests as one of the principles of CED.

MS. WHELAN ENNS: Thank you.

Dr. O'Gorman is also nodding her head, for the record.

DR. O'GORMAN: I agree.

MS. WHELAN ENNS: Thank you.

In your presentation material on page 6, this may be both economic practices and a CED question. And that is, again, thinking about pattern, comparison to other projects and other business arrangements, is there a pattern emerging in Canada on this kind of larger project and/or is it usual for the primary local stakeholder or stakeholders, as in communities plural, to also be business partners in the same project?

DR. BUCKLAND: Could I just ask if you could just reframe it or restate it? I'm just a little bit unclear of the question.

MS. WHELAN ENNS: Fair enough.

Trying to avoid making a statement, but we are in a situation where the Keeyask Cree Nations are four communities, they are local. They are, in your presentation and in others, referred to as the primary local stakeholders in terms of the undertaking. They are also the business partners in the long term for the project.

So my question to you is, then is this a trend, and specific to this of course is First Nations community, is there a trend or a pattern? Is this usual? Are you seeing this? And again, probably it is both a financial and CED question, are you seeing this happening in Canada?

DR. O'GORMAN: So this is the second instance of this type of arrangement in the case of Manitoba. Wuskwatim is the first.

I don't feel knowledgeable enough to comment on a nation wide basis, but my impression is that this is, in terms of the financial arrangements and equitable sharing of economic benefits, this is a model. It is viewed as four First Nations, relative to a large hydroelectric utility, as an ideal scenario, depending on the more specific arrangements that are within a financial agreement.

DR. BUCKLAND: If I could just add in terms of community economic development, I think there is, you know, the whole area of social enterprise and cooperatives, that's certainly, you know, a phenomenon in Canada. I'm not an expert to say whether it is growing or not, but it certainly is a phenomenon in Canada. And I think

that's where communities are getting organized to address economic challenges through innovative more collaborative style arrangements.

MS. WHELAN ENNS: Thank you.

Then in this model, assuming there are other stakeholders, is the role, the voice, the participation of other stakeholders blocked, diminished, changed, if we are talking about a project where the primary stakeholders become the business partner?

DR. O'GORMAN: Sorry to ask you, can you repeat that again?

MS. WHELAN ENNS: I will try again, absolutely.

So assuming the previous question and answer, and assuming there are other stakeholders involved and/or affected by the Keeyask Generation Station project, if the primary stakeholders are the business partners in the project going forward, then is the participation, the voice, the role of the other stakeholders affected, and diminished, increased, changed?

DR. O'GORMAN: I see what you are saying. So there are other stakeholders in the province, right, so there are stakeholders that

either are concerned about whether this is a clean project in terms of CO2 emissions, damage to aquatic life, damage to other wildlife. There are environmental stakeholders, for example, that do not share in the economic benefits of the project. So, to that extent, those individuals may have less of a stake in the project going forward relative to those that are benefiting economically, right?

I can't speak for those other stakeholders that are not benefiting economically, but just thinking intuitively or theoretically, those individuals' interest would not be as represented relative to the individuals who are benefiting economically, whether that be Hydro or the KCNs.

MS. WHELAN ENNS: Thank you.

The next question you have already answered.

Now, I think I'm on page 13 in your presentation. This is the first bullet in terms of business opportunities. I'm just going to take the numbers as a given. And you are identifying that there is a direct negotiated contract value of $203.1 million, that is a reserve for the KCNs.

Having been in the room most of the time, I don't believe that we have, in fact, covered this yet, but I'm going to give it a try in terms of questioning. How does this affect the process of public bids and tenders, that is if the $203.1 million is the DNC, and obviously it is more specific as to when and for what. What happens potentially then if there is dramatic increases in the costs of being able to deliver certain business contracts? Again, this is a theoretical question, but I'm curious both in terms of the effects on CED and the potential for economic growth in the communities in the region, and also how this would, if suddenly everything starts costing more, how this would affect the overall partnership and economy?

THE CHAIRMAN: Can I interrupt here?

Mr. Bedford, did you want to comment on this or -- I saw the mic get moved in front of you, I thought you might save me the trouble.

MR. BEDFORD: No.

THE CHAIRMAN: Ms. Whelan Enns, I don't see how this panel could be expected to answer that question. It might be a legitimate question to pose to the Partnership, but I'm not

sure that these witnesses --

MS. WHELAN ENNS: We will pass and go on to the next one, sir.

I have got a reference to page 19 here, but it is basically a question that came up at approximately at that point in the exchange in the room, it is not specifically on page 19. I wanted to ask you both then whether you have seen the exhibit that Fox Lake First Nation has provided in the hearing and provide to the CEC regarding their description of the vote among their members for the JKDA and the challenges that they experienced?

Have either of you seen the exhibit and/or are you aware that it was less than 50 per cent?

DR. O'GORMAN: Are you talking about the Fox Lake presentation to this hearing?

MS. WHELAN ENNS: This was an exhibit that they provided specifically with their presentation.

DR. BUCKLAND: We have the statistics here from --

THE CHAIRMAN: Ms. Craft.

MS. CRAFT: I would just like some

clarification as to what document Ms. Whelan Enns is referring to so that we can make sure we have it for our witnesses.

MS. WHELAN ENNS: Fair point. I don't have it at hand, but Mr. Neepin circulated it at the time of the first Partnership panel, and it was an explanation of their challenges, so it is an early on exhibit, and it is an explanation of their challenges in terms of how geographically dispersed their membership is, and what their challenges were in terms of holding the vote, and that it is less than 50 per cent?

THE CHAIRMAN: Okay. I think that's all on the public record, or on the record of this hearing. I'm not quite sure where you are going with it now.

MS. WHELAN ENNS: Well, Mr. Chair, I wanted to basically make sure that the two experts are aware of that, given what they put in the record. I will go on quickly.

Next note is page 25. You've mentioned behavioral economics, and I had to basically take a look myself, and I wanted to ask you, in connection to your presentation, your time yesterday and today, to just quickly tell us which

elements of the definition of behavioral economics you see as being most applicable and most relevant in terms of your research and your expert advice?

DR. BUCKLAND: Well, the behavioral economics sort of drops the assumption that people always behave rationally, which is the standard assumption in orthodox economics. Instead of that, they actually do studies to try and understand, how do people actually behave, and they called it bounded rationality, that our decision making is often quick, and we use limited information, and sometimes we make decisions that are against our own interests.

One of the ways in which the behavioural economists have identified this rationality is how decision making is framed. The point they are making is that the framing of, like a project, like the Keeyask project, how it is framed and presented to someone could influence their decision-making about whether they would support it or not. So I think it is the framing question that we were flagging as a question to raise.

MS. WHELAN ENNS: Thank you.

Part of the public record then for

these hearings includes a sustainability assessment of the planning phase for the Keeyask Generation Station. And it states that $100 million has been spent to date on it, again, this is a ten-year period, on the planning stage, negotiations with the KCNs.

My question is whether or not you have, again, in your research and your reviews and your preparation, given any thought to the kind of, again, CED assistance, orientation, or services to do with the economics of all of this, that you would have, in an ideal situation, wanted to, in fact, see provided to these communities early on?

DR. BUCKLAND: If I understand, if I could just clarify the question -- could you clarify the question please?

MS. WHELAN ENNS: Certainly.

You got the preamble I'm sure.

So the question is, given what has been spent, and given your areas of expertise, whether there are specific services, sets of information, or supports that you would identify as potentially having been of benefit to the KCNs early on in the planning and negotiations

sequence, and it is a long time line?

DR. O'GORMAN: So you are saying over the past ten years, the way consultation played out, both with KCN leadership and members and Manitoba Hydro and KCN members?

MS. WHELAN ENNS: Certainly the communities, yes.

DR. BUCKLAND: Well, I think the most important tools that a community would have when funds are flowing to them, and when projects are going, would be the project planning and evaluating tools, so participatory planning and evaluating tools, in fact, I think would be very helpful.

DR. O'GORMAN: No comment.

MS. WHELAN ENNS: Fair enough. Questions finished, Mr. Chair.

THE CHAIRMAN: Thank you, Ms. Whelan Enns. Peguis? Not here. Concerned Fox Lake?

MS. PAWLOWSKA-MAINVILLE: Good afternoon, Dr. O'Gorman and Dr. Buckland. Thank you for your presentation.

So my name is Agnes, and we have met before, and I'm speaking for the Concerned Fox Lake Citizens. The first question I have is in

regards to community development.

So some of the principles and practices for a community prosperity are listed in your presentation and in your report. Do you think that in terms of community economic development that economic power should reside locally to the greatest extent possible?

DR. O'GORMAN: Yes.

DR. BUCKLAND: Yes, I think that's a very -- the principle of subsidiarity is sometimes what it is called, yes.

MS. PAWLOWSKA-MAINVILLE: Thank you.

Would you say that from the perspectives of communities who have been already impacted by some form of development, and perhaps have even said that they are traumatized by some of those projects, that every project from that point on is considered only to be a community economic development project that is built for capacity?

DR. O'GORMAN: So you are referring to, I guess, the trust issue that we mentioned earlier, given past harm, any new projects will be viewed as simply economic development projects?

MS. PAWLOWSKA-MAINVILLE: Correct,

yes?

DR. BUCKLAND: Could you restate the question? I'm not clear about it yet.

MS. PAWLOWSKA-MAINVILLE: Of course.

So from the perspective of actually local communities who have been already impacted by some form of development, so in their acceptance of a project or another developmental project, would you say that they view such a project through the lens of a community economic development perspective that builds long-term capacity and capacity building and --

DR. BUCKLAND: Well, I think that's the ideal that a community would look for, that ideal as a way to move away from a more harmful kind of relationship.

MS. PAWLOWSKA-MAINVILLE: Okay. Thank you.

And next question I have is about economic growth and sometimes it is correlated with human development. What aspect of human development in such a project would you consider to be important?

DR. O'GORMAN: So human development can be defined in many ways, right, it can be

defined as health, physical health, it can be defined as one's spiritual wellness, it can be defined as one fulfilling their objectives in life, right, it is a very broad term. So, again, I guess we come to the fact that Keeyask represents an approved project for a portion of these communities, and for other individuals it does not represent that.

So to some extent the way that people have voted in a referenda reflect how they feel about the project, and that can be positive in terms of overall human development and it can be negative. It depends on the community in question.

MS. PAWLOWSKA-MAINVILLE: Thank you.

My next set of questions deals with methodology, and some of it will touch our group that you have met with prior to your presentation. So one of the individuals that you met from CFLGC, our group, that was an elder from the community, correct?

DR. BUCKLAND: Yes.

DR. O'GORMAN: Yes.

MS. PAWLOWSKA-MAINVILLE: From your experience, are elders seen by many indigenous

peoples and even in scholarship as respected individuals in the community?

DR. BUCKLAND: Yes.

DR. O'GORMAN: Yes.

MS. PAWLOWSKA-MAINVILLE: Thank you.

And seeing how you were involved with indigenous studies, indigenous economic development, from your expertise, how are relationships with elders developed?

DR. O'GORMAN: Over one's life time, through listening, through showing respect for that person, through listening to their wisdom whenever possible.

MS. PAWLOWSKA-MAINVILLE: Thank you. Have you been invited by this elder to come and speak to other individuals in the community or to visit his community?

DR. O'GORMAN: Yes.

MS. PAWLOWSKA-MAINVILLE: And had you had the means to do so, because you said you were limited to the time constraints and the means, would you have taken him up on his invitation?

DR. O'GORMAN: Yes.

DR. BUCKLAND: Yes.

MS. PAWLOWSKA-MAINVILLE: Thank you.

So from a community development perspective, do you think that the initiative of such an elder from this community, or other elders from other communities, to present their views at the hearings, at the CEC hearings, is a form of community participation?

DR. BUCKLAND: Absolutely, very important.

DR. O'GORMAN: Definitely.

MS. PAWLOWSKA-MAINVILLE: Thank you.

And objectively speaking, and considering your expertise, are the diminishment of those voices to numbers, so for example quantity rather than quality, seeing, listening to what they have to say, is a good example of support of community voices?

DR. O'GORMAN: Yes. This came up earlier, right, we only spoke to two individuals from Fox Lake, which can be viewed as not a representative sample. But the power of those voices that we heard was strong, and we wish we could have spoken to more elders and more individuals from all four KCNs.

DR. BUCKLAND: Again, there is a very much accepted methodology now, qualitative

methods, and it is understood that qualitative methods are a very important authentic form of research. And that involves in-depth interviews with small numbers of people. The purpose of that kind of methodology is different than a quantitative method, so it is important to be clear on the methodology and the purpose. But it is very important.

MS. PAWLOWSKA-MAINVILLE: Thank you.

Another question in terms of methodology, have you seen Manitoba Hydro include direct quotes from -- views from Fox Lake or other communities who openly opposed the project being included in the EIS?

DR. O'GORMAN: I don't think so. I am not confident in that response.

DR. BUCKLAND: I'm not certain.

I know that in the public involvement program of Manitoba Hydro, I did go through the first round literature, and there was some reference to some comments of people who disagreed with the project.

DR. O'GORMAN: Just to clarify my first response, within the public involvement program documents there is a lot of itemization of

the potential harms that can result from the Keeyask project, which signify concerns on the part of KCN members, that they have about the project. But that's different from your specific question which referred to quotations.

MS. PAWLOWSKA-MAINVILLE: Yes, I meant direct quotations of individuals saying, no, we don't want this project, or we oppose this project, or something like that, as a way of supporting the data that is given?

DR. BUCKLAND: If I could clarify then? In my reading of the public involvement material, there weren't quotes, there were simply bullet summaries of some points.

MS. PAWLOWSKA-MAINVILLE: Okay, thank you.

Continuing with minority voices, would you say that there are also other forms, other than the CEC hearings, of community participation without voting necessarily, such as blockades at the project site, public presentations, being critical even, for example, in the offices, or having researched, composing research on your own terms. Are those some forms of community participation, in your view?

DR. BUCKLAND: Certainly.

DR. O'GORMAN: Definitely.

MS. PAWLOWSKA-MAINVILLE: In your experience with working with communities, have you ever heard of cases where individuals say they do not vote in a certain election because it is how they viewed this to be the best way to express their opposition to the entire process of voting and the project?

DR. BUCKLAND: Yes.

DR. O'GORMAN: Yes.

MS. PAWLOWSKA-MAINVILLE: Thank you.

And also in terms of voices, if community members had voted for the project, and then at some point they realized that things were not done well, some of the promises were not kept, would you say that they are allowed to change their mind about the position of the project with the assumption that they have a form of community, or self-determination as a community?

DR. BUCKLAND: Absolutely. And that's particularly important given the 100-year life span of the project. It means there could be some decisions changed.

MS. PAWLOWSKA-MAINVILLE: Thank you.

And just one second -- you answered this question.

Sorry, going back to your methodology and the idea of peer review, would you say that most often First Nations and grassroots voices, individual voices are not -- are seen by academia and scholarship as recognizable knowledge?

DR. O'GORMAN: Definitely.

DR. BUCKLAND: Yes.

MS. PAWLOWSKA-MAINVILLE: Thank you.

You may have mentioned this before, but you both have your PhDs, correct?

DR. O'GORMAN: Yes.

DR. BUCKLAND: Yes.

MS. PAWLOWSKA-MAINVILLE: And you work with indigenous communities?

DR. BUCKLAND: Correct.

DR. O'GORMAN: Yes.

MS. PAWLOWSKA-MAINVILLE: Have you looked at the credentials of the Manitoba Hydro consultants for this project?

DR. O'GORMAN: Like overall every witness?

MS. PAWLOWSKA-MAINVILLE: Yes, for the witnesses that are presenting on behalf of the

Partnership or Hydro?

DR. BUCKLAND: I have not.

DR. O'GORMAN: Neither have I, no.

MS. PAWLOWSKA-MAINVILLE: Are you aware that many of them have masters degrees?

DR. BUCKLAND: I didn't know that but it doesn't surprise me.

MS. PAWLOWSKA-MAINVILLE: In your experience as instructors at the university, would you say that someone with a masters degree has the knowledge and depth to grapple with some of the issues that are raised here?

DR. O'GORMAN: I don't think that capacity is naturally or straight forwardly related to higher education, right? Some people might be quite insightful without a bachelor's degree, and some people might be quite insightful about another issue with a PhD. It depends on the person.

THE CHAIRMAN: Mr. Bedford?

MR. BEDFORD: I think for this line of questioning you need to lay a proper foundation. So the foundation would be, do Dr. O'Gorman and Dr. Buckland know the consultants and people who have worked on this area of this project? Have

they worked with them in the past? Are they able, through that direct knowledge, able to assess their qualifications and abilities?

We all know in life that you don't judge people by the number of letters that might follow their name. If you did that, you would sadly misjudge me, for example.

THE CHAIRMAN: I often feel the same way, Mr. Bedford. So I think that Dr. O'Gorman answered that reasonably well and I'm not sure that --

MS. PAWLOWSKA-MAINVILLE: I don't have any other -- sorry.

THE CHAIRMAN: That was your last question?

MS. PAWLOWSKA-MAINVILLE: No, I just wanted to verify that precisely, just like in people who don't have PhDs, who can qualify and perhaps be witnesses, indigenous people who don't have any letters under their name can also become sources of information that do not need peer reviews.

THE CHAIRMAN: And I think we accept that as a given.

MS. PAWLOWSKA-MAINVILLE: And that's

fine.

And then final question that I have for you is, do you know if any of the CEC reports for Manitoba Hydro are peer reviewed?

DR. O'GORMAN: So the reports such as ours?

MS. PAWLOWSKA-MAINVILLE: No, the reports done by Manitoba Hydro to the CEC, do you know if they are peer reviewed?

DR. BUCKLAND: I don't know, but I would suspect not, but that's a guess.

MS. PAWLOWSKA-MAINVILLE: Okay. Thank you.

And the last is somewhat of a large and a broad question, just to sum up some of the questions that I had. It is in regards to the statement that was raised as an issue about communities that do not have experience in developing and running a mega project like the Keeyask dam that you mention in your report. And for the record, the elders from our group were not offended by the comment, but they did have a question about experience as well.

So, in your experience as educators, are average individuals, Aboriginal or not,

specifically individuals who are harvesters and trappers, who are not immersed or educated in subjects like economics, business issues, business strategies, engineering, have the capacity to understand some of the issues that are raised at these hearings?

DR. BUCKLAND: Absolutely.

DR. O'GORMAN: Definitely.

MS. PAWLOWSKA-MAINVILLE: Okay, thank you. Those are all of the questions that I had.

THE CHAIRMAN: Thank you, Ms. Pawlowska-Mainville. Pimicikamak, Ms. Kearns?

MS. KEARNS: Hello. Stephanie Kearns for Pimicikamak.

I just have a couple of quick questions because most of my topics were covered.

So could you, Dr. O'Gorman, please clarify whose projections for adjusted gross revenue you used for your interest calculations?

DR. O'GORMAN: They were hypothetical values, so what I wanted to do in that analysis is think about a low level of adjusted gross revenue, which would be zero, and then a high level of adjusted gross revenue, which I chose as 200 million.

I could have chosen a higher number. What I did was I tried to match, to the best of my ability, the annual distributions that were presented in the Partnership's documents, which range between 5 to 8 million, and that stemmed from the information response request from the NFAT proceedings.

And as I mentioned in my presentation, I ended up with annual figures that are lower than those values, but they are somewhat similar.

MS. KEARNS: And how confident are you in the higher end projections, in terms of the confidence that the Partnership will achieve those adjusted gross revenues?

DR. O'GORMAN: It is really hard for anyone to say. So you would need a crystal ball, which I don't have and the Partnership doesn't have. Those figures are very uncertain, both on the high end and the low end. We just simply don't know the level of interest rates, the potential demand for energy going into the future. That will be covered more in the NFAT than I could possibly state.

MS. KEARNS: Thank you.

THE CHAIRMAN: Thank you, Ms. Kearns.

Mr. Craft, that concludes cross-examination. Any re-direct?

MS. CRAFT: I have two short questions on re-direct, Mr. Chair.

Drs. Buckland and O'Gorman, I promise these will be short, and thank you for your patience in coming back today.

Yesterday you confirmed for Mr. Roddick that you read the Cree Nation Partners environmental evaluation reports. And I wanted to ask you if in that particular report you found any comments in the EER in the nature of those that were made and referred to in your presentation, the comments made by Mr. Spence or Ms. McIvor, as you cited in the presentation?

DR. BUCKLAND: The document is descriptive and doesn't contain very many quotes, and so we didn't find quotes of a similar nature.

MS. CRAFT: Okay. So would it be fair to say then the form is not the same as what you've put forward in terms of the comments that you have illustrated?

DR. BUCKLAND: Yes.

MS. CRAFT: Okay. What about the substance of some of the comments in the report,

would you find something similar in the substance of the comments?

DR. BUCKLAND: Yes, there is strong similarity in substance.

MS. CRAFT: Would you direct us to where we might find some of those similar comments in that EER?

DR. O'GORMAN: We don't have it here with us.

DR. BUCKLAND: I have a portion of it. And on pages 40 through 42 there is a listing of concerns, starting with 7.71, interference with the right to hunt, trap, fish for food; 7.72, loss of historical connection to the land that will be flooded, et cetera.

So there is several points. And for each point there is essentially a two to four sentence description, which is helpful, it just didn't contain the emotive quality of the quotes.

MS. CRAFT: Thank you.

THE CHAIRMAN: What is that document that he was just reading from?

MS. CRAFT: The environmental evaluation report of the Cree Nation Partners.

THE CHAIRMAN: Thank you.

MS. CRAFT: Okay. If I can refer you back to slide 25 that Mr. London was asking you a question on, and particularly the second bullet, which lists that important segments of the Keeyask Partner communities do not agree with the project going forward.

My question to you on this important segment is whether or not this is, in your view, and your intention is this is a purely quantitative statement, or is there a qualitative aspect to what it is that you have put forward here?

DR. BUCKLAND: It is both. There are a minority of people who voted against the project. And someone who is vehemently opposed to the project is different than someone who, well, you know, I don't support it, but if it goes ahead, I can live with it. I mean, those are very different positions relative to a referendum. So I think both quality and quantity are very important.

MS. CRAFT: Thank you. Those are my questions.

THE CHAIRMAN: Thank you very much.

That concludes our examination of

these witnesses. I want to thank you very much for your participation, for preparing these reports and the presentation, and especially for coming back a second day. So thank you.

DR. BUCKLAND: Thank you very much.

THE CHAIRMAN: We will break for 15 minutes and come back at 3:25 with the going forward -- oh, I'm getting ahead of myself. I didn't allow any panel questions, so don't run off just yet.

Mr. Shaw?

MR. SHAW: No questions.

THE CHAIRMAN: Ms. Bradley?

MS. BRADLEY: I actually have one.

I have one question, and I think, Ms. O'Gorman, I think I will direct it to you, but if you are not the one, then that's fine.

Page 19 of your report, near the bottom under the section 3.1.1, labour income from Keeyask, I'm not going to ask you about income. But going down toward the end of the first paragraph, it is referenced there that the KCN members would hold about 15 per cent of the total projected jobs. And then in the paragraph that immediately follows that, it states that there is

risk that the KHLP will not be able to meet this target. And then in there it goes on to indicate the number of people who were trained through the Keeyask Hydro Limited Partnership. And then there is an indication that a number of these individuals have only taken one course.

So I have a few questions of the number of people who were trained. Do you have in your research information, or can you respond as to how many were successful with their training, how many have been able to obtain employment because of their training? And I'm most curious about, have taken only one course, and what would the rationale be for that? And how would one course lead into training for their job?

DR. O'GORMAN: Right. Very good question.

So the 1,876 refers to the successful completion of one course. That is obviously not an indicator of whether or not a person is qualified. That could be the one course that brings them up to the level of being qualified, or it could be just one step towards being qualified. I'm not familiar, and I did look through the Wuskwatim reports on skill development, and there

was no indication of a person surpassing that level. It is a very, very hard thing to determine, so it is very vague.

These data refer to one course. They talk about how many people had completed certain types of courses. But how that relates to the eventual demand for labour on the construction project is currently unknown.

MS. BRADLEY: Okay. Thank you.

So that's probably the math or the physics course that seems to be a stumbling block. Thank you.

THE CHAIRMAN: Mr. Yee?

MR. YEE: Thank you, Mr. Chairman. I have a follow-up question from Judy's. It is page 13, section 2.1.2, training. It is along the same lines, the same statistics are given there. But essentially what you are saying is that, as part of the training initiative, there were approximately 800 jobs with both Wuskwatim and Keeyask projects.

I'm just wondering why you didn't follow that up in terms of how many jobs, given that Wuskwatim has been more or less done, how many jobs were successfully created, and give us a

better idea. I guess in the context of community economic development, how does this training component fit in, in terms of was it a successful component, or what is your view on that, please?

DR. O'GORMAN: So I do mention in the section that we were just discussing, which the chairperson mentioned on page 19, I believe we were on. In that section I talk about the fact that Wuskwatim did provide employment for something near 900 person years, which is higher than the Keeyask level, indicating confidence that indeed the Keeyask project will match those employment numbers, given that the project draws from a similar labour market. So I do note the importance of that, and the fact that in achieving that goal, naturally the word qualified is very subjective, depending on the contractor in question. But with regard to the comparison of Keeyask versus Wuskwatim, I do indicate that we have confidence in the ability of the project to find labour, given Wuskwatim's success in that regard.

MR. YEE: Thank you. No further questions.

THE CHAIRMAN: And I have no

questions, so now I can wrap it up. So, again, thank you very much for your participation here.

DR. BUCKLAND: Thank you.

THE CHAIRMAN: We will break for 15 minutes, so come back just after 3:30 with the going forward panel and cross-examination.

(Proceedings recessed at 3:17 p.m. and reconvened at 3:30 p.m.)

THE CHAIRMAN: We are into cross-examination of the Moving Forward Panel. There has been some horse trading, or there was some horse trading a day or two ago. I think I have it straight; Peguis swapped with Consumers Association, so Consumers Association will be at the end of the run. We have Concerned Fox Lake Citizens up now, followed by Pimicikamak, then Wildlands, and finally Consumers. So for today we will start off with Concerned Fox Lake Grassroots Citizens, Ms. Pawlowska-Mainville.

MS. PAWLOWSKA-MAINVILLE: Thank you. This is the third time in one day. I think I have beat my own record.

THE CHAIRMAN: I think you did earn your fees.

MS. PAWLOWSKA-MAINVILLE: Good

afternoon I have a few questions, hopefully about 15 minutes. So, the first question I have is regarding page 31. And that's regarding the MAC or the monitoring advisory committee. And one of the questions that I have is how will the representative from each of the communities be selected, on what basis?

MR. BLAND: Hello, Ted Bland. From our community we will be looking at elders, resource users, youth, but mostly people who have been around and shared a lot of traditional knowledge.

MS. PAWLOWSKA-MAINVILLE: And what is the specific role that this individual will have? What will they be doing?

MR. BLAND: On the MAC?

MS. PAWLOWSKA-MAINVILLE: Yes.

MR. BLAND: I guess as the role of the MAC, it is an advisory committee, they would be sharing knowledge, gathering knowledge, and working with the limited partnership, or making recommendations or advising the limited partnership.

MS. PAWLOWSKA-MAINVILLE: Is this more of an office job or is this more of a land based

kind of job?

MR. BLAND: I would think it would require a little bit of office work. But like I said, it depends on who is appointed. The person that would be appointed would be appointed by our council, chief and council, and of course they are going to be there to represent York Factory. But a lot of the times when we have our knowledge holders or resource users or elders that come in, they come into future development to bring forward a lot of issues or concerns or just information. And they use us to relay information, you know, through internet or whatever, if it needs to be done quickly, otherwise it is sharing information just by recording it and then passing it on.

MS. PAWLOWSKA-MAINVILLE: Do you have a job description already made out for this individual?

MR. BLAND: Hang on for one second. We don't have one quite yet.

MS. PAWLOWSKA-MAINVILLE: And will this individual --

MR. BLAND: We do, sorry.

MS. ANDERSON: Can I just ask you to clarify? Like you were asking about the committee

member, right, not the -- I don't know if -- you were talking about a job --

MS. PAWLOWSKA-MAINVILLE: I'm talking about the monitoring advising committee.

MS. ANDERSON: The representative, right, you are talking about?

MS. PAWLOWSKA-MAINVILLE: Yes, on page 31, it says it will have a representative from each of the partner communities and Manitoba Hydro. And so I'm just inquiring a little bit about the job that entails the position of this representative from each of the partner communities.

MS. ANDERSON: I don't think there is a job description per se, but there is responsibilities for that member -- for us, like our member, we expect them to take the concerns of the community to this advisory committee to make recommendations on what our members are seeing in the environment.

MR. BLAND: Some of the responsibilities would be sharing information related to monitoring, reviewing monitoring activities, receiving updates and reports about environmental, social, economic monitoring

activities, providing input, consider whether there are any changes happening, and just monitor any activities as required.

MS. PAWLOWSKA-MAINVILLE: Okay. And you mentioned earlier that it would be a harvester or elder, that elder will be required to do this sharing of information, reviewing of monitoring activities, looking at the social economic impacts and looking for input?

MR. BLAND: That's a possibility, yes. A knowledge holder, user -- like, I would consider myself to be a knowledge holder because I go out on to the land quite regularly. I hunt. I pass on knowledge to my younger generation. I pass on knowledge to my children. But I also work in an office, so it could be considered somebody like me.

MS. PAWLOWSKA-MAINVILLE: Okay. Thank you. And then will one of the roles and responsibilities of this individual have, because you said it does require land based activities, a form of conservation officer like duties, meaning they can have some form of power associated with being responsible for the environment?

MR. BLAND: I think at some point as

we move forward we are looking at a stewardship program. At this point a lot of the information that's going to be shared in the beginning is traditional knowledge. As I pointed out, it is going to come from knowledge holders, resource users, elders.

MS. PAWLOWSKA-MAINVILLE: Okay, thank you.

MS. ANDERSON: Can I just add? I want to add Fox Lake's process usually is we make a call out to our members who are interested in being on a committee, and if we get interested applicants or interested persons they submit names to chief and council. And then we probably will confer with our core group users in who would be the representatives. We kind of try to make a widespread decision in the community of who would be the representative. And then we would expect that person to -- like we would go over with them what the responsibilities would be of that position, especially bringing committee information to the committee, and then also relaying back what the results of those decisions are, those recommendations that they took forward. I just wanted to say that it is kind of different

in each community, and that's why I wanted to make sure you got our process.

MS. PAWLOWSKA-MAINVILLE: Okay. Thank you. So in terms of having a call out for the position and the job requiring a little bit of office work and a little bit of land based work, so I'm assuming that an elder would not have a resume that they would submit in order to have this position, or are you hoping to have the elders participate in a program where they have resumes created?

MS. ANDERSON: Not a resume, like their experience, their interest, so we would assist them. Like if somebody is there who can't write, we would assist them. We won't deny nobody if they couldn't write or, you know what I mean? We would consider everybody who was interested.

MS. PAWLOWSKA-MAINVILLE: But for the position you would require a resume?

MS. ANDERSON: No, I said a letter saying they are interested, stating that they are interested.

MS. PAWLOWSKA-MAINVILLE: Okay. How will you determine their experience and knowledge in order to fulfill that position?

MS. ANDERSON: We would discuss it with them and also we would probably entail the core group users in our community, because that's kind of where the focus is, is on the environment and the activities of that sort. So we would go to that core group of elders, resource users. We know who our people are, we know their experience, so like we don't grill them on a resume.

MS. PAWLOWSKA-MAINVILLE: So if these individuals are core group elders, for example, do you have, do you envision that they will have the skills to work in an office and deal with some of the issues such as having internet access, writing reports, sharing information and distributing information?

MS. ANDERSON: That would be a requirement, and if they couldn't do it we would assist them is what I'm telling you. Most of our communities have internet access, we all have computers, we all have basic offices and we will assist whoever is the person to get, you know, what their responsibilities are to make sure that they can complete them.

MS. PAWLOWSKA-MAINVILLE: And these individuals, will they look after a specific area

or the entire area? Like, how will their placement on the land look like?

MR. BLAND: I just wanted to add too before we move forward on that question, elders, I can be considered an elder. I'm a former chief of my community, if you are knowledgeable about First Nations then you would know. I have had that role for just a couple years, but I would be considered somebody that is considered to be an elder in our community. I don't look old, hopefully, I don't want to cross any lines here, but I would just say that, you know, a lot of what we do in a community, it depends on what you do for a community to be considered a knowledge holder or a resource user or an elder. So I kind of -- I see where you are heading with that, and I just want to say that we do have a lot of people in our community that are considered elders that are capable of using the internet, of writing letters, and stuff, you know, just whatever needs to be done in an office. As well as people that are more than, you know, I don't want to say qualified, have the experience of living out on the land and knowing the history of it. I would consider myself to be one of those people. I go

up to our traditional territory in York Factory on a regular basis. I know the territory in York Factory. I know how to survive in the bush. I know how to hunt. Like I said earlier, I teach my kids how to hunt and fish and all of those different things. So I'm just -- I just want to let you know that we have a lot of people just like me in our communities.

MS. PAWLOWSKA-MAINVILLE: Okay. Thank you, I appreciate that. So going back to my former question. So will this representative be responsible for a specific area of land or will they be responsible for the entire region? How will that land be selected?

MR. BLAND: I think what we have identified is mostly our resource management areas. Tataskweyak has a resource management area which we are all familiar with, Fox Lake, similarly and York Factory we have a resource management area, and those are areas that are identified to be monitored by the First Nations.

MS. PAWLOWSKA-MAINVILLE: Thank you.

MS. ANDERSON: For Fox Lake we would use all of the area that we utilize, so it may not be just restricted to our resource management

area, our whole traditional territory.

MS. PAWLOWSKA-MAINVILLE: So I can assume that you mean both resource management areas and traditional territories then, correct?

MS. ANDERSON: Yes.

MS. PAWLOWSKA-MAINVILLE: Thank you. So my next set of questions is in regards to monitoring plans on page 8.

MS. KIDD-HANTSCHER: If I could perhaps just add a couple of additional comments to the KCN representatives. If we are looking at the terms of reference for the monitoring advisory committee, those are scheduled in the JKDA and that's schedule 4.7 to be precise. And the terms -- I want to come back to a couple of the points that have been raised or questions asked about a job description, and I think the answers given have been excellent, but if you were to read the terms of reference it clearly outlines what the function of the committee is. And you can extrapolate from that what the job descriptions really would look like if you want to define them that technically for the representatives from the communities.

And the other thing that I think is

really important, as how I was interpreting a number of the questions, is about the support that will be there for the individual that is chosen, or individuals for each of the communities. And they will receive support from a number of sources. And I think they are all really important when you put them all in the basket, because we talked yesterday very quickly at the end about how integral MAC is to the partnership's governance structure, so they will receive support from their own staff, from their implementation offices, from staff that are working on the community based monitoring programs. Each of the communities is entitled or is eligible to bring advisors to the MAC meetings, and that's outlined in the terms of reference. And those advisors don't just come to meetings, they provide support in between meetings for all processes related to MAC. And also finally and really importantly Hydro is very committed to providing support to those MAC representatives from each of the communities. This isn't a sink or swim approach. This is we will work very collaboratively, and we have done that and proven that very effectively on Wuskwatim with the functioning of the MAC.

So I just wanted to add those points because I think they were key to the questions that were being asked.

MS. PAWLOWSKA-MAINVILLE: Thank you. So my next set of questions in regards to monitoring plans, as per slide on page 8; so are the ATK monitoring plans that are done by the First Nations done in a co-management approach? If I can ask in order, we will start with Ms. Anderson.

MS. ANDERSON: What do you mean co-management? With all communities or --

MS. PAWLOWSKA-MAINVILLE: Co-managing I mean the ATK co-managing with western science, for example?

MS. ANDERSON: Okay. So we are taking that co-management to mean is there another independent body that's involved in our TK, or not our TK, our monitoring program. For Fox Lake it will be an independent initiative.

MS. PAWLOWSKA-MAINVILLE: I'm referring to page 8, so on the slides you have technical science under environmental monitoring plans, and then Aboriginal traditional knowledge. So two kind of separate but aligned. So I'm just

wondering for the Aboriginal -- so ATK, will that be a form of co-management, like will you use any science data at all in there, or will you rely simply on ATK?

MR. BLAND: For York Factory it is going to be strictly traditional knowledge, ATK, it is just going to be York Factory only. It is not co-management, because they are two separate -- what would you use, they are separate things I guess, separate information.

MS. PAWLOWSKA-MAINVILLE: Thank you.

MR. BLAND: But we will be working together in the western science area with our youth and that, in order for us to develop as we move forward as partners.

MS. PAWLOWSKA-MAINVILLE: Okay. Thank you. Mr. Spence for your community?

MR. SPENCE: Good day, Mr. Chairman, panel. I have notes in front of me, but I guess I will just respond to the question here. Our community TCN will create, after identifying concerns and evaluating the resources available for that year to create a monitoring plan where our elders and members and youth and the harvesters will participate. And that will be

done annually, and that's also a sit and meet with the other proponents, and also with the partner Manitoba Hydro. And Hydro will have its own, I won't call them advisors, but consultants that will do the work under the white man's rules. And after that studies are implemented. There would be meetings internally within TCN to monitor, evaluate, review the program, the monitoring program. Of course we would also meet with certain departments with Manitoba government, Federal government, in implementing the plan. But most importantly it will be TCN.

And sometimes I take an exception where the intellect, the intelligence of my elders are questioned based on the academics. My grandfather was 95 years old, and at that time he passed away. My grandfather told us children, "I remember, I look at the priest when he put the cross on my forehead, I didn't know what was happening." My father never set foot in school, not one hour, not one minute. But each morning when he got up as a child he heard the wind through the rustling of the trees and the leaves. And he lived that environment, he understood that environment, he felt that environment, he was very

part of that environment.

So when we speak of our elders participating meaningfully in these committees, they bring forth convictions in their statements. I cannot do that. You cannot do that. So do not judge my people based on your academics in understanding our way of life. You went to school like everybody. I went to school. My grandfather didn't. My mom did not, but my mom can tell me about the environmental changes she witnessed. She was about 40 years old when this impact happened; Kelsey was built, Kettle. I was born in 1956, I saw the changes. I was 20 years old when the CRD happened. Our elders cried. Our elders can speak and defend the statements they make in regards to environmental changes. They will be very important in the process of this, the monitoring committees that we have. Yes, there will be other committees that we may not use them, but they will be part of the community. They are part of -- we honour and respect our elders as such. They are the voice and they are the carriers of knowledge. And that's what we bring here.

They participated in over 2,000

meetings we had in Split Lake, TCN, to look at this partnership. It is not that we didn't go into this blindly. Our people choose through a referendum to be part of this process. Yes, there are voices out there that question why. We honour and respect that voice, but that doesn't mean we exclude them in this process. They have every right to be there. My partners here, we will be elders, and I will be there. I'm sorry, my world has changed this morning. But I don't want to dwell on that.

But I was 21 years old when I started this process in terms of Manitoba Hydro relationship. I have been there. We fought many battles with Manitoba Hydro. But on Keeyask we are partners. TCN will ensure that through the agreement that we have that our voice be heard, and participate meaningfully, willingly, in these different committees that are identified to police the agreement that we have among ourselves and respectfully the other proponents.

It is not this one page. This is what we have for this year. But we have a 30 years relationship. We are going to have another long term relationship. I respect the voice of

outside. We talk about primary stakeholders, I have a different understanding, interpretation of such. Maybe I'm -- I'm sorry, I will stop there.

MS. SAUNDERS: I would like to add to that. As York Factory said in its presentation, our stewardship plan will apply both traditional knowledge and western science. We see the value in both perspectives and methods. Also we want our members, particularly youth, to gain knowledge and experience in both. ATK will have a distinguishable voice in the EIS and will not be melded with western science so as to become invisible. The EA process honours and respects ATK and the Cree worldview. It is recognized that ATK has value in it and of itself. Thank you.

MS. PAWLOWSKA-MAINVILLE: From Fox Lake?

MS. ANDERSON: I think that we know ourselves that our elders are very knowledgeable and that their knowledge is paramount to our processes, and we do not take that lightly. We will make sure that all proponents are aware of that. And we do value the -- or we do take into account the scientific knowledge also. We don't discount it, but we also meld it with our

knowledge. Thank you.

MS. PAWLOWSKA-MAINVILLE: Thank you. So my understanding is that TCN has this immense wealth of knowledge by the elders, but they will also work under white man's rules. York Factory will look at science made by students, and they will take into consideration TK and western science and Fox Lake will do the same. So my question then is, if you have the environmental monitoring plans and you have technical science on one side, are you willingly including Aboriginal traditional knowledge and adding science on top of that? Can it not stand alone without the support of science?

MR. BLAND: Western science, all the studies that have been done through the environmental impact statement and everything else, none of that could have been done without having the First Nations there. We are the ones that showed Manitoba Hydro where the fish are, where they are in the spring time, where the sturgeon go, where the geese fly and where they land, where the moose are, where the caribou come in the winter time. All of this information was shared and all of these studies and impacts that

were done were shared by us. And without all of this information, western science wouldn't have been able to produce documents.

Our traditional knowledge is also something that we recognize and respect. It is kept on two different levels because we want it that way. We chose to work with our elders and our youth, our knowledge holders. Those are the people that are going to continue the monitoring programs, they are going to continue to pass on traditional knowledge. Thank you.

MS. ANDERSON: Okay. For Fox Lake I said we don't discount the science. We said that most of the studies that were done, like we enhanced the scientific studies, that's because of our people were involved in those studies. So we feel that they were done better. And I guess going forward for our monitoring programs, we are -- we have a higher standard than what the regulators say, so that's why I say we don't discount the science because we were part of some of those studies, but I think we will have a higher standard in our monitoring programs.

MS. PAWLOWSKA-MAINVILLE: Thank you. So it is my understanding that ATK will be

included in the technical science of the environmental component or -- so they are not going to be kept separate as it is currently written on the slide?

MS. NOTHOVER: What is written on the slide is the list of plans. So there are those five technical science plans and then the Aboriginal traditional knowledge plans. They are not co-managed. The communities are responsible for their community based plans which, as they say, may include technical science with their ATK. And then Manitoba Hydro is responsible for the western science plans. Aboriginal traditional knowledge, as they mentioned, has been built into those plans to get the information of where sturgeon and caribou and geese are found. And then our partners are going to be working side by side with our western scientists on those plans to implement them. So those -- so what actually is happening is the western science plans have ATK included in them, and the other plans are going to be the discretion of the communities, how they undertake them.

MS. PAWLOWSKA-MAINVILLE: So may I ask how come there was not a co-management approach

used for the environmental monitoring plans?

MS. NOTHOVER: I think I explained in my presentation, and Vicky did it during her presentation about the two track approach to the assessment, and that's what we are going to do going forward.

MS. COLE: I'm not sure I'm totally following what you are getting at in terms of co-management. We have a monitoring advisory committee that includes five representatives from our partners, five Manitoba Hydro representatives, as well as advisors from both parties. We will work together collectively to implement the technical monitoring programs and to review and discuss the outcomes of the ATK monitoring programs. And together we will determine whether those monitoring programs need to be updated or changed, in addition to whether mitigation -- whether there are changes required to mitigation on an ongoing basis. So from my perspective, I'm a little bit lost. We are working together as partners to implement and manage that program together.

MS. PACHAL: I think Martina said it most eloquently. Is that as a partnership there

is value in both of the perspectives of both western science and Aboriginal traditional knowledge.

MS. PAWLOWSKA-MAINVILLE: Okay. Thank you. So I'm going to ask this question again to the community and the First Nations members. So who will do the science data collection? Will it be community members or will it be Manitoba Hydro?

MS. SAUNDERS: Can you ask that question again?

MS. PAWLOWSKA-MAINVILLE: Since you all have mentioned that you will include science data in your components of ATK, who will do the science data collection? Will it be community members or will it be Manitoba Hydro or the consultants?

MS. SAUNDERS: What do you mean by science data?

MS. PAWLOWSKA-MAINVILLE: I mean the western science that's gathered, that defers from the ATK.

MS. SAUNDERS: Well, it would be like a joint effort. It wouldn't be solely just for one partner to collect that data, because like my colleague mentioned that it is a joint effort.

When these studies are being conducted in our territories, it is the First Nations who take -- well, okay, I will give you an example -- who take Manitoba Hydro out to go and do specific studies because they don't know their way around the land. You know, it is a joint effort, it is not all done just by one party, and it is something that we want to do. We can't, like -- like I said earlier, ATK is not melded with western science. I don't know if you read our report, but it is stated throughout the document what Aboriginal -- well I guess the non-aboriginal world would know it as Aboriginal traditional knowledge, that's the term that's used, but it is our way of life.

MS. PAWLOWSKA-MAINVILLE: So am I to understand that the youth will not be doing sampling, they won't be doing collections, water monitoring, water quality, and writing all this down and doing the process of scientific measurements?

MS. SAUNDERS: Now you are being a little more specific. I can speak to that, yes, they can be included because it is a joint effort.

MS. PAWLOWSKA-MAINVILLE: Okay. Thank you. In Fox Lake will it be the same?

MS. ANDERSON: Sorry about that. Just can you repeat that? Sorry? I don't know if you asked a different question.

MS. PAWLOWSKA-MAINVILLE: So in Fox Lake you mentioned that you will have kind of like this process where you will collect ATK data, you will do ground truthing, but you will also look at western science or data, western knowledge I guess, in order to have your environmental monitoring plans. So I'm just wondering will the scientific data that you plan to include in your ATK environmental monitoring plan will be collected by members of the community, so the scientific data collection will be done by community members, or will it be done with the help of the consultants by Hydro?

MS. ANDERSON: So for us we expect that our studies, our ATK studies would inform the science. And some of our elders core group resource users have stated that they would like to be part of the studies, like collecting maybe water samples, those types of things. But at the same time, they would decide when they wanted to use the science itself. And I guess if you want like a clear cut answer of what they are going to

do, like I guess scientists will do the scientific studies and we will do the ATK studies. There is different parts that they want to be involved in, not every part of it.

MS. PAWLOWSKA-MAINVILLE: So there currently is nothing in place, no capacity building in place to have the community members learn the methods of the scientific process?

MS. ANDERSON: It is being developed, like we have a plan, but it is not -- like I wish I could hear all of your questions at once so I could answer. It is being developed right now, it is not fully developed, what our monitoring plan is going to be, but training is a part of it.

MS. PAWLOWSKA-MAINVILLE: So training will be done by community members and they will be trained in doing data or western science collection?

MS. ANDERSON: It is being developed right now, we don't have the fine details of the plan itself, but we want to make sure that ATK and our members are the ones who are fully involved in it and fully -- I guess telling us which is the best way to do it. And if it has to be training scientifically, I guess we need to address how we

are going to do that. And if it is going to be learning directly on the land with our elders, then we will ensure that's done also. But there is nothing been developed, like fine details yet.

MS. PAWLOWSKA-MAINVILLE: Okay.

MS. PACHAL: I would just like to point out that we have been undertaking environmental studies for many years, you have heard about. And a lot of the members from the various communities have been, as you heard, working with the scientists on the land showing them where the fish are and where the moose are. We just heard that.

So for years members of the communities of our partners have been working along with the scientists in the field sharing knowledge. And if you would have asked some of the panels that had been up here previously, a lot of the scientists will tell you the best thing that they are taking away from this project are the relationships and the things they have learned from the members that they have worked with in the communities. So that capacity has been built for years.

I also would like to take a minute,

Mr. Chair, Mr. Spence is dealing with a serious family issue and he had to excuse himself. Sorry.

MS. PAWLOWSKA-MAINVILLE: Thank you. Again, I'm may be pressing on this, but if this capacity has been developed for the last ten years, isn't the community at a point where they don't need scientists to come into the community and to research, that they can conduct their own research studies based on the skills they have acquired with working with those scientists?

MS. NOTHOVER: Are you referring to that in regard to their Aboriginal traditional knowledge plans, or community based plans or the western technical science plans?

MS. PAWLOWSKA-MAINVILLE: I'm referring to the Aboriginal traditional knowledge environmental monitoring plans.

MR. BLAND: So can you rephrase the question then?

MS. PAWLOWSKA-MAINVILLE: Well, it was stated that you, the three members with Mr. Spence speaking for TCN, will conduct your own ATK monitoring plans. And you all stated that you will include western science and the data, as well as ATK studies in those plans. And my question

now is, the data that will be gathered in the community for these plans, will it be collected by First Nation members who are experienced in the field of doing studies, chemistry, environmental studies, scientific studies? Do they have the capacity to do those things?

MR. BLAND: We also said that we are going to be working with Hydro while they collect their information, their monitoring information. But earlier too we talked about how we wanted to keep our own ATK separate, and that our knowledge holders and our resource users are the ones that have the information, are going to be monitoring the effects or the impacts as time goes on.

But in terms of western science, we have people that are going out to school to train in different areas, that are interested in stewardship. So, you know, at some point they are going to come back and work with us. Not everybody wanted to hold that same interest. But it does not mean that we can't deliver a good monitoring program if we use traditional knowledge. Because it sounds like you are saying that we can't deliver a good program without western science. If that's the direction you are

going, you keep pressing for that.

MS. PAWLOWSKA-MAINVILLE: Not at all, perhaps you misunderstood me.

What I am trying to ask is, if you all stated that you are using science in your ATK, I'm trying to see if the science that will be used in your ATK studies will be gathered by community members. Will there be capacity created with this project in order to enable the youth or the community members to perhaps obtain the skills and the tools to collect scientific data in the communities for their own environmental plans, and work with the ATK?

MS. ANDERSON: Okay. I think this question is different than the one you asked earlier, I think you had more questions on the other one. But anyway let me answer this one.

I stated that our plan is to have a training component in our monitoring plan, so that will be including our youth. One of the, I guess, components of our plan is to have teens going out on to the land, and that will include the resource users, plus two youths, or at least two youths, to have knowledge, transfer the knowledge of the resource users.

And also when we said that we were -- we would use the science, we would use the aspects of the science that would be appropriate for studies, but we would do the ATK studies themselves, and there are some of our members who are interested in doing like formal education in environmental studies. So I think that's what you are asking?

MS. PAWLOWSKA-MAINVILLE: Yes.

MS. ANDERSON: Yes, okay.

Yes, there are people, and I know that some people in our own office have taken some courses towards that. So, yes.

MS. PAWLOWSKA-MAINVILLE: Okay.

So I'm understanding, and this is the final one, that there will be capacity building to the point that there will be no need to have Hydro consultants working in the science fields, because you will have enabled your community members to do the work for them?

MR. BLAND: Yes. As I pointed out, we do have that program also in our stewardship plan to have a training component and to, you know, build our education and training for our members, you know, specifically in the area that you

identified earlier.

MS. PAWLOWSKA-MAINVILLE: Thank you.

And because this is a two-track approach and each side --

MS. ANDERSON: Sorry, can I just add to that also? Excuse me, I have got a sore throat.

Like I said, we have this plan to have all of our members, you know, excel in whatever area they do, not just environmental studies. So I'm not really sure, like you keep asking about the training, and I just want to make sure that for us, like most of our members are working in our offices right now, so I think we've gone pretty far in our capacity building, not only just in environmental studies but in other areas. So, I just want to confirm again that, yes, that is a goal for all of our members to have the highest level they can go. Thank you.

MS. PAWLOWSKA-MAINVILLE: Thank you.

So in terms of being a separate two-track approach, my question is again to the First Nations, what will you do, or how will you reconcile disagreements if ATK and science comes to a disagreement at assessing and evaluating

impacts?

THE CHAIRMAN: I think that's a speculative question. I mean, if and when that arises, they will work it out at that time, one would hope. But how they could answer at this point how they might deal with something that may or may not happen in the future? I'm not sure that it can be responded to.

MS. PAWLOWSKA-MAINVILLE: Well, throughout the EIS it has been stated that there is caribou, woodland caribou, there isn't woodland caribou. So there is certain numbers of this, there are certain numbers of this. So it is stated throughout the EIS that ATK doesn't always agree with western science.

So my question is, in terms of monitoring and how to handle the plans for assessing and evaluating impacts, if those disagreements do become an issue, how will they be dealt with?

THE CHAIRMAN: Okay. I will allow that question. But I must say that your questions are -- you are asking almost the same thing just in different words. And you may have heard me admonish another counsel earlier today for asking

the same question in different wording. So I will allow this one, but please move on and get on to a new line of questioning.

MS. PAWLOWSKA-MAINVILLE: Okay.

MR. BLAND: One of the things that we do recognize is that our relationship with Manitoba Hydro is very important in that in our presentations we talked about maintaining the relationship and making sure that different steps are taken to resolve any disputes. We pointed out MAC earlier, that's one of the ways that we can try to resolve any issues. We do have other regulators such as Conservation, DFO, that need to maintain and monitor different impacts that are going to be happening as well.

If there is anything specific such as unforeseen or foreseeable issues that can not be dealt with, we do have other avenues such as the adverse effects agreement, which is there to address any issues or mitigate any issues that need to be dealt with.

MS. PAWLOWSKA-MAINVILLE: Okay. Thank you.

MS. PACHAL: The Partnership has a long history and record of working through

disagreements. Many, many years of where we have different views. And so the caribou is a great example of where our results and what the Cree's worldview was about the caribou, and which caribou were in the area didn't line up. So we said, okay, so we are going to assume in this instance the Cree are correct, those are the caribou that are there. And we designed the EIS and our mitigation and our monitoring assuming that the Cree perspective is correct. And so we have a long track history, a long track history as a partnership of working together to figure out, as the Chairman said, figure out a way to work it out when everything doesn't line up.

MS. PAWLOWSKA-MAINVILLE: Thank you.

I have a question to the First Nation Partners in terms of the offsetting program. Will there be a monitoring plan developed for that area as well?

MR. BLAND: You are referring to offsetting lakes and programs like that?

MS. PAWLOWSKA-MAINVILLE: Yes.

MR. BLAND: Yeah. Again, it is going to be resource users, it is going to be elders, people that have traditional knowledge, they are

the ones that are going to be out there, and they are the ones that are going to be sharing information and bringing it back to the communities.

Our communities will be having meetings to discuss what potential impacts or monitoring concerns that might come up. But I also wanted you to know that our elders are very, very serious when it comes to these types of things, especially impacts or effects. They notice everything, and they don't leave it. They come to us, you know, people like myself, or Martina, or any of my other colleagues, they come to us to make sure that we are dealing with the situations, that we are bringing them forward, and that whatever avenues that we have in place are being utilized. They don't let anything sit, and they come with a strong voice. And you know, there is a lot of emotion when they bring their issues and concerns forward, and we respect that.

And they follow up with everything too. So if we don't deal with something, then we get our -- we get dealt with, we will put it that way. And they don't take it lightly. They take a really hard line with us, and we have a job to do,

and we take it very seriously.

MS. PAWLOWSKA-MAINVILLE: Thank you.

So my understanding for the offsetting is that you will fly individuals from different communities, so four different communities, to areas, and there will be no monitoring plans made for those areas because ATK does its own monitoring; correct?

MR. BLAND: Just give me one second here?

MS. ANDERSON: Okay. You are asking about two different monitoring plans? Because we will have our own monitoring plan and we will monitor all of the areas that we use, including the offsetting areas.

MS. PAWLOWSKA-MAINVILLE: Okay, thank you.

MS. ANDERSON: You keep saying First Nation but you just let one person answer. I wanted to go back to the other question, I just wanted to say that -- can you, do you have it written down, can you reread it, the question just before this one that you asked and Ted answered?

MS. PAWLOWSKA-MAINVILLE: I'm not sure, I asked about the monitoring plan for the

offsetting area. Is that the question?

MS. ANDERSON: Just the one prior to that question? But it is okay.

MR. BLAND: Yes, as I pointed out, you know, we will have our resource users and our elders and knowledge holders monitoring and all of that information will be brought back.

Was there anything specific that you were referring to?

MS. PAWLOWSKA-MAINVILLE: Have the elders or any of the resource users visited those offsetting areas?

MR. BLAND: Absolutely. That's why they were identified. They are within our resource management areas, and we would not have identified them if we didn't think that they were, you know, sufficient enough for us to help sustain what we do.

MS. PAWLOWSKA-MAINVILLE: Thank you.

So then just to finish off, so there will be monitoring plans made for the area around Keeyask, right, and not around the offsetting areas?

MS. COLE: If I could -- sorry, Victor had to leave, and I know he would answer this

question 100 times better than I will, but I did want to point out that several of the adverse effects agreements actually include stewardship programs which are specifically designed to undertake monitoring as the first point. And in the case of the Cree Nation Partners, given the size of their community, obviously the offset programs in those communities are quite a bit larger than they are in either York or Fox Lake. There are a lot more people who are taking advantage of the access program as well as the healthy food fish program. And in that case the Cree Nation Partners have taken the extra step of developing on their own a moose harvest sustainability program, which we talked about as part of the panel that was up here to talk about biophysical effects. And in addition to that, they have also developed a fish harvest sustainability plan to coincide with their health food fish program, to ensure that moose resources throughout the entire Split Lake resource management area are managed for the long term and there for the long term for their members, and similarly so that fish resources in the offsetting links that are used for the healthy food fish

program are appropriately managed.

Each of these communities also has resource management boards, who are co-management boards with the province, that also undertake long term monitoring and decision making. And as part of the adverse effects agreements, each of the communities, there is a clause in each of those agreements that resource based programs, that ongoing monitoring and discussion about -- monitoring reports are produced on an annual basis on the outcomes of those programs and provided directly to the resource management boards to assist them in managing resources in each of those resource management areas. So I think they have got it covered.

MS. PAWLOWSKA-MAINVILLE: Okay. Thank you.

So another question that I had is, Ms. Northover, you mentioned that there will be funding for technical advisors, and Mr. Neepin was discussing the enrichment of the human capacity and the richness of the ATK, as well as the other partners were mentioning the same idea, the richness of the ATK. Will there be funding available to harvesters who are the actual

knowledge holders of the area?

MS. NOTHOVER: I'm actually not in a position to answer that question. I don't know if anyone here is.

MS. COLE: What specifically are you asking, what type of funding?

MS. PAWLOWSKA-MAINVILLE: I'm asking if -- local harvesters are actual knowledge holders. So like it was mentioned by Mr. Bland that they look at the land, they understand the land, they know how many animals are in the area, so they are stewards of the land. Will there be any funding at all available from this project to ensure that these individuals can go out there and maintain the stewardship over that land?

THE CHAIRMAN: I think that's been asked and answered a number of times in the last hour. Mr. Bland and Ms. Anderson in particular, and Ms. Saunders spoke about the fact that people from their community will be going out on the land. Mr. Bland talked just a moment ago about the people that would be using the offsetting lakes, and that they are elders and knowledge holders, and that they would be bringing the information back.

MS. KIDD-HANTSCHER: Mr. Chairman, if I could add that the funding is a fundamental component of the community based monitoring programs that will be developed, so absolutely that is there.

THE CHAIRMAN: Thank you. That was the question I was going to ask the Partnership at some point or other.

MS. PAWLOWSKA-MAINVILLE: Thank you.

And then the other question I had is in regards to monitoring as well. Mr. Neepin actually stated that it is a primary effective watchdog of the effects of the project and must be fundamental. And I received this letter, the letter that was given and read out loud by Mr. London yesterday, stating that there is a reciprocal commitment among the partners to work together. So I'm just wondering, for Fox Lake in this case, is there an actual monitoring plan already in place, or drafted that can be made available, or is it just a commitment that you have, in order to have a monitoring plan?

MS. ANDERSON: We have the commitment to fund our monitoring plan, but, yes, we have our own commitment -- we have our own monitoring plan

that I said has not been fully developed yet.

MS. PAWLOWSKA-MAINVILLE: Is there a draft version available of that plan?

MS. ANDERSON: Well, there has been discussions with the core group on how they want this plan to work. Like one of the components I said earlier was that they wanted to ensure that elders go on the land, that teens will go on the land with at least two knowledgeable resource users, and taking youth along with them for transfer of knowledge. So that was one component. And there is several other ones that -- and that they would decide where the monitoring would occur, like they would prioritize where, depending on the construction schedule. So those are some of the components of the plan, but it has not been fully developed yet.

MS. PAWLOWSKA-MAINVILLE: But there is a draft version that is available?

MS. ANDERSON: A draft version, no. No, there is not a draft version available.

MS. PAWLOWSKA-MAINVILLE: Okay. But the core group elders have seen a version of this plan, correct?

MS. ANDERSON: No, they haven't seen

it because it hasn't been developed, but it has been discussed with them. They are the ones who bring the ideas forward that is going to develop this plan.

MS. PAWLOWSKA-MAINVILLE: Okay. Thank you.

Can I ask then if the project has been in development for the past ten years, and Mr. Neepin said that it is a fundamental basis for adaptive management and the environment, and it is a watchdog of the effects and must be fundamental, why is it that this plan is only in draft, being drafted now, and there is only a commitment to have this plan and not a real plan is in place?

THE CHAIRMAN: Ms. Pachal should answer that.

MS. PACHAL: I'm going to take a stab at this from a really high level. One of the challenges in the licensing phase of a project is figuring out to what extent do you implement. We are in the licensing phase, we don't know if the CEC is going to recommend the licence for our project. We do not know, after the Needs For and Alternatives To hearings whether or not a licence will be granted. So myself and team are in a

constant state of negotiation and balancing the puts and takes of how much we advance and how much we pay for, and how much we develop things in a licensing phase. And this is an excellent example. That monitoring, if the project doesn't proceed, monitoring doesn't proceed. So how far do we advance on monitoring without a project in place? So there is a number of items that are only partially developed or conceptual because we are in a licensing phase.

MS. PAWLOWSKA-MAINVILLE: So there is no technical science monitoring plan made up either?

MS. PACHAL: I think there are aspects of it, but I will let Carolyne speak to that.

MS. NOTHOVER: All five of those monitoring plans have been submitted, but as I said in my presentation, they are in draft form, they are very preliminary, and there is a lot of work to do on all of them. If licensed, the licenced conditions need to be worked into those plans as well. So they have been submitted but they are not finished.

MS. PAWLOWSKA-MAINVILLE: Okay. So there is a draft version of the science plans, but

only a commitment to have ATK monitoring plans?

THE CHAIRMAN: I don't see the relevance of that question. It has been responded to, so please move on.

MS. PAWLOWSKA-MAINVILLE: I guess my next question about the fact that there is only a commitment to the plan is, how confident are you in the science based studies that the environmental protection plans will be --

THE CHAIRMAN: I think that's the same question in different words.

MS. PAWLOWSKA-MAINVILLE: Well, what I'm trying to get at is, why is it after ten years of development -- and yes, licensing is a factor -- is it that there is drafts made available of the science based data, and if this is supposed to be an equal value two-track approach, there is not even a draft of the ATK plan? Is it because it is no longer deemed necessary to have an ATK plan?

THE CHAIRMAN: Let me answer this in a couple of different ways. One is that Ms. Pachal just described sort of a normal regulatory licensing process, and it is not -- in fact, it is a common practice that the whole environmental

protection program is described in draft form through the environmental assessment review process, but they are not finalized until after the licence has been issued. And as Ms. Pachal noted, there is at least two big steps, this being one of them, and the NFAT proceeding being another, before the licence is issued. In fact, there are other steps as well, including the Aboriginal consultation process.

So none of those steps has been completed yet, so we would not expect or anticipate that the proponent has completed these monitoring plans.

They have told us today that they have been, there are draft versions, that in the First Nations communities they have had discussions about them to start setting them up.

So, I mean, I think that the question that you have been asking many times over the last hour is essentially the same question. They are under review, they are being considered, but they are not finalized yet.

And I should also note that we would not expect, as part of our review, to see final versions of these plans before we make our

recommendations. That's a normal part of an environmental review process.

MS. PAWLOWSKA-MAINVILLE: Thank you. However, our concern is that a requirement for a potential, even a draft version of a monitoring plan is required to have a licence. However, if there is no ATK plan, then the licence will go through, but the licence will not go through if there is no science based plan. So we are trying to determine whether or not a licence will be granted without an ATK plan, only on the basis of the science based plan.

THE CHAIRMAN: Well, I believe I just said that a licence may well be issued before a science based plan or an ATK plan is concluded.

MS. PAWLOWSKA-MAINVILLE: Okay.

THE CHAIRMAN: In fact, as Ms. Pachal noted, and I think I reiterated, they are done in draft form at this point until the licence is issued. After the licence is issued, they are finalized usually before construction commences.

MS. PAWLOWSKA-MAINVILLE: Okay, thank you.

So the last question I have then on the Moving Forward for the three First Nations

partners, so I will ask each of you in order, I suppose. Do you think that hydro development is the only viable form of development in the north?

MS. MAYOR: Mr. Sargeant, this is the Moving Forward panel. That question is not at all appropriate for this panel.

THE CHAIRMAN: I would agree.

MS. PAWLOWSKA-MAINVILLE: Okay. Thank you.

THE CHAIRMAN: Thank you, Ms. Pawlowska-Mainville.

We are past the normal adjournment time for the day. We have a few documents to register.

MS. JOHNSON: Yes, PFN001 are the documents submitted October 7th with the CVs and the submission outline. PFN002 is Mr. Flanders' report, and 003 is Mr. Flanders' presentation.

(EXHIBIT PFN 001: Documents submitted October 7th, CVs and submission outline)

(EXHIBIT PFN002: Mr. Flanders' report)

(EXHIBIT PFN003: Mr. Flanders' presentation)

THE CHAIRMAN: Thank you. I don't think that we have any other business to attend to, so we will stand adjourned.

Ms. Pachal?

MS. PACHAL: Just for people's planning purposes, would you like the panel back tomorrow morning?

THE CHAIRMAN: No, nothing against you.

MS. PACHAL: It is December 5th, the afternoon.

MS. JOHNSON: December 5th, afternoon.

THE CHAIRMAN: Tomorrow we have two presentations by Manitoba Wildlands. Monday, I don't know, there is all kinds of things. But December 5th in the afternoon.

Thank you very much for your time today. We will see you all at 9:30 tomorrow morning.

Mr. Regehr?

MR. REGEHR: Mr. Bland has a question.

THE CHAIRMAN: Sorry, Mr. Bland?

MR. BLAND: I just wanted to say that up north we have been having snow storm after snow storm, and I have been flying back and forth to

try and make these panels. It is really unnerving flying back and forth. As you are aware, there was an incident in Northern Ontario which involves the same type the plane that I have been flying on, and we have had some really rough flights. And, you know, people I know are traveling here to be on these panels as well. I just want you to know that I'm traveling here and I would like to move this panel to get done. And I don't mean to be rude, but I don't know why we are not getting equal consideration to move the panel forward and complete this panel?

THE CHAIRMAN: I hear what you are saying, Mr. Bland, and believe me, we would really like to move this entire process forward. But there are certain things that we have no control over, and among those are the length of the cross-examinations that we allow. Under normal administrative law proceedings, we don't limit those. And by the same token, it is also the length of the responses. We can not control the responses or the -- the questions or the answers. And that is largely why our scheduling has gone very awry over the last number of weeks. So we are sensitive to that. If, you know, if there are

other things that you would be involved in around the time of the 5th, we may be able to work some arrangements in then so that you don't have to -- we can get them in together. But if you or Ms. Pachal could speak, or Ms. Cole could speak with the Commission secretary, we could try and minimize the number of times that you have to fly in and out of the north.

MR. BLAND: Okay.

(Adjourned at 4:38 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.