

**JOINT REVIEW PANEL FOR THE ENBRIDGE
NORTHERN GATEWAY PROJECT
COMMISSION D'EXAMEN CONJOINT DU PROJET
ENBRIDGE NORTHERN GATEWAY**



**Hearing Order OH-4-2011
Ordonnance d'audience OH-4-2011**

**Northern Gateway Pipelines Inc.
Enbridge Northern Gateway Project
Application of 27 May 2010**

**Demande de Northern Gateway Pipelines Inc.
du 27 mai 2010 relative au projet
Enbridge Northern Gateway**

VOLUME 102

**Hearing held at
Audience tenue à**

**Ramada Prince George
444 George Street
Prince George, British Columbia**

**November 6, 2012
Le 6 novembre 2012**

**International Reporting Inc.
Ottawa, Ontario
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Canada

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as represented by the Minister of the Environment
and the National Energy Board

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participant à l'audience publique.

Imprimé au Canada

HEARING /AUDIENCE

OH-4-2011

IN THE MATTER OF an application filed by the Northern Gateway Pipelines Limited Partnership for a Certificate of Public Convenience and Necessity pursuant to section 52 of the *National Energy Board Act*, for authorization to construct and operate the Enbridge Northern Gateway Project.

HEARING LOCATION/LIEU DE L'AUDIENCE

Hearing held in Prince George (British Columbia), Tuesday, November 6, 2012
Audience tenue à Prince George (Colombie-Britannique), mardi, le 6 novembre 2012

JOINT REVIEW PANEL/LA COMMISSION D'EXAMEN CONJOINT

| | |
|-------------|------------------------|
| S. Leggett | Chairperson/Présidente |
| K. Bateman | Member/Membre |
| H. Matthews | Member/Membre |

APPEARANCES/COMPARUTIONS

(i)

APPLICANT/DEMANDEUR

Northern Gateway Pipelines Inc.

- Mr. Richard A. Neufeld, Q.C.
- Mr. Ken MacDonald
- Mr. Bernie Roth
- Ms. Laura Estep
- Ms. Kathleen Shannon
- Mr. Dennis Langen
- Mr. Douglas Crowther

INTERVENORS/INTERVENANTS

Alberta Federation of Labour

- Ms. Leanne Chahley

Alberta Lands Ltd.

- Mr. Darryl Carter

Alexander First Nation

- Ms. Caroline O'Driscoll

BC Nature and Nature Canada

- Mr. Chris Tollefson
- Mr. Anthony Ho

Doug Beckett

Province of British Columbia

- Ms. Elizabeth Graff
- Mr. Christopher R. Jones

Nathan Cullen

C.J. Peter Associates Engineering

- Mr. Chris Peter

Canadian Association of Petroleum Producers (CAPP)

- Mr. Keith Bergner
- Mr. Lewis L. Manning

Cenovus Energy Inc., Nexen Inc., Suncor Energy Marketing Inc.,
Total E&P Canada Ltd.

- Mr. Don Davies

Coastal First Nations

- Ms. Brenda Gaertner

Council of the Haida Nation

- Ms. G.L. Terri-Lynn Williams-Davidson

APPEARANCES/COMPARUTIONS
(Continued/Suite)

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- Mr. Jim Monroe

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- Mr. Murray Minchin
- Ms. Cheryl Brown
- Mr. Kelly Marsh
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- Mr. Aryn F. Lalji

Enoch Cree Nation, Ermineskin Cree Nation and Samson Cree Nation

- Mr. G. Rang Jeeakathil
- Mr. Sean Fairhurst
- Mr. Brock Roe

ForestEthics Advocacy, Living Oceans Society
and Raincoast Conservation Foundation - "The Coalition"

- Mr. Barry Robinson
- Mr. Tim Leadem, Q.C.
- Ms. Sasha Russell
- Ms. Karen Campbell

Fort St. James, District of

- Mr. Kevin Crook

Fort St. James Sustainability Group

- Mr. Lawrence Shute
- Ms. Brenda Gouglass
- Ms. Candace Kerr

Friends of Morice-Bulkley

- Ms. Dawn Remington

Gitxaala Nation

- Ms. Rosanne M. Kyle
- Mr. Robert Janes

Government of Alberta

- Mr. Ron Kruhlak

Government of Canada

- Mr. Kirk Lambrecht

APPEARANCES/COMPARUTIONS
(Continued/Suite)

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INTERVENORS/INTERVENANTS

Haisla Nation

- Ms. Jennifer Griffith
- Ms. Hana Boye
- Mr. Jesse McCormick
- Mr. Allan Donovan

Kelly Izzard

Kitimat Valley Naturalists

- Mr. Walter Thorne
- Mr. Dennis Horwood
- Ms. April MacLeod

MEG Energy Corp.

- Mr. Loyola Keough
- Mr. David A. McGillivray

Northwest Institute of Bioregional Research

- Ms. Patricia Moss

Office of the Wet'suwet'en

- Mr. Mike Ridsdale

Swan River First Nation

- Mr. Jay Nelson
- Ms. Dominique Nouvet

United Fishermen and Allied Workers' Union

- Ms. Joy Thorkelson
- Mr. Hugh Kerr

Terry Vulcano

Josette Wier

National Energy Board/Office national de l'énergie

- Mr. Andrew Hudson
- Ms. Carol Hales
- Ms. Rebecca Brown
- Mr. Asad Chaudhary

ERRATA

(i)

Saturday, November 3, 2012 - Volume 100

Paragraph No.:

Should read:

24140:

“Yes, so correct”

“Yes, correct.”

24144:

“...recovery is rapid response remediation...”

“...recovery is rapid response and remediation...”

24225:

“...going to sneak out here.”

“...going to speak out here.”

24228:

“...was an excessive...”

“...was in excess of...”

24229:

“...an excessive one...”

“...in excess of one...”

24237:

“...oil that it’s density is close...”

“...oil that has a density is close...”

24412:

“...these spill-its, these...”

“...these spilletts, these...”

24414:

“...these spill-its in that...”

“...these spilletts in that...”

24464:

“...we developed and permeated a water treatment system...”

“...we developed and permitted a water treatment system...”

24708:

“...using scenography basically.”

“...using sonar basically.”

24956:

“...the Narrow Way herd in...”

“...the Narraway herd in...”

24958:

“Yes, that’s on our – our understanding.”

“Yes, that’s our understanding.”

ERRATA

(ii)

Monday, November 5, 2012 - Volume 101

Paragraph No.:

25097:

“Yeah”

Should read:

“RoW, yeah.”

25115:

“...distance has been used commonly...”

“...distance that has been used commonly...”

25125:

“...you’re speaking to, again, regional affects areas...”

“...you’re speaking to, and the regional effects assessment areas...”

25137:

“Yeah that’s the seam that was used to show the extent of the caribou herd range”

“Yeah that’s the theme that was used to show the extent of the caribou herd range”

25183:

“...defines its core habitat...”

“...defines as core habitat”

25208:

“...showed, so we were a bit shaky.”

“... showed, I am a bit shaky.”

25218:

“...as define for the Quinetette ...”

“... as defined for the Quinetette...”

25270:

“I’m sorry it’s I don’t think fair...”

“I’m sorry but I don’t think fair””

25342:

“...Northern Eco-type caribou...”

“... Northern Ecotype caribou”

25362:

“...Imperial Creek to the Mesilinka River...”

“...Imperial Creek to the Missinka River...”

25363:

“...the majority of the habitat is we’re following linear features.”

“...the majority of the habitat is where we’re following linear features.”

ERRATA

(iii)

Monday, November 5, 2012 - Volume 101

Paragraph No.:

Should read:

25405:

“...this concludes all of...”

“...this includes all of...”

25430:

“...think in two different types or two different types of effects...which the recovery plan...”

”...think of two different types of effects... which is in the recovery plan...”

25446:

“...I would say that it depends on the species that you’re dealing with.”

“...I would say that it depends on the species that you’re dealing with.”

25559:

“I am familiar with it in a general level.”

“I am familiar with it at a general level.”

25573:

“Sorry it was just finding the correct page...”

“Sorry I was just finding the correct page...”

25592:

“...this is a herd range-wise ...”

“...this is a herd – range-wide...”

25654:

“...that as a linear feature...”

“...that as an existing linear feature...”

25686:

“...what will that give us that end of the day?”

“...what that will give us at the end of the day?”

25688:

“...is it’s the mortality of the caribou...”

“...it is the mortality of the caribou...”

25692:

“...that’s where we place most of our effort.”

“...that’s where we’ve placed most of our effort.”

ERRATA

(iv)

Monday, November 5, 2012 - Volume 101

Paragraph No.:

25699:

“...a response that we said it would change the amount of effective habitat...”

25714:

“...or not, habitat’s important.”

25719:

“...is to understand caribou...”

25757:

“...objectives about bio-diversity...”

25802:

“...of the Mesilinka forestry road...”

25805:

“...example. Is, we have forestry...”

25821:

“...over the years. I can specifically...”

25831:

“The topic of do caribou cross rights-of-way was not part of the discussions that I was involved in...”

25838:

“...that has not been raised as a major issue...”

25852:

“...within these areas it’s essentially a massed effect, is you...”

25860:

“...I would say if you’re dealing in a right-of-way...”

Should read:

“...a response that said it would change the amount of effective habitat...”

“...or not, habitat is important.”

“...to understand caribou...”

“...objectives about biodiversity...”

” ...of the Missinka forestry road...”

“...example. We have forestry...”

“...over the years, I can specifically....”

“The topic of “do caribou cross rights-of-way” was not part of the discussions that I was involved in...”

“...that it has not been raised as a major issue...”

“...within these areas it’s essentially a masked effect, if you will...”

“...I would say if you’re dealing with a right-of-way...”

ERRATA

(v)

Monday, November 5, 2012 - Volume 101

Paragraph No.:

25876:

“...we’re creating younger serial
vegetation...”

25878:

“...large core habitats are finding it
because of this that...”

25940:

“...would appear that your feature...”

25941:

“...to prevent lower numbers.”

25943:

“...where – it’s small enough ... the change
and something that’s ...”

25956:

“...what is Salmo & Diversified’s ...”

25957:

“...by Francis et al. So that was...”

25973:

“...and Diversifieds’ work...”

26006:

“...the 1.8 kilometre squared threshold...”

26010:

“...the name Sean Francis...”

26037:

“...habitat and moving that.”

Should read:

“ ...we’re creating younger seral
vegetation...”

“...large core habitats are finding that
because of this that...”

“...would appear that linear feature...”

“...to present lower numbers.”

“...where: it’s small enough...the change;
and, something that’s ...”

“...that is Salmo & Diversified’s”

“...by Francis et al, so that was...”

“... and Diversified’s work...”

“...the 1.8 kilometre per kilometre squared
threshold ...”

“...the name Shawn Francis...”

“...habitat and removing that.”

ERRATA

(vi)

Monday, November 5, 2012 - Volume 101

Paragraph No.:

Should read:

26216:

“...it’s been sort of evolved...”

“...it’s sort of evolved...”

26310:

“...spoke to wouldn’t have a wildlife component.”

“...spoke to would have a wildlife component.”

26315:

“That planning level we...”

“At the planning level we...”

26320:

“...to as this linear feature removal or habitat compensation plan.”

“...to as the linear feature removal or habitat compensation plan.”

26352:

“...species, the waitings might vary...”

“...species, the ratings might vary...”

26369:

“...as well as maintaining certain levels of environment.”

“...as well as maintaining certain levels of environmental values.”

26381:

“...Imperial Creek to the Mesilinka is we...”

“...Imperial Creek to the Missinka is we...”

26385:

“...result of some of the predictive habitat changes...”

“...result of some of the predicted habitat changes...”

26402:

“A sharp-tailed grouse...”

“Sharp-tailed grouse...”

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| AQ42-A | Terry Vulcano – Shadow Populations in Northern Alberta – Part 1 – Quantification – Prepared for the Northern Alberta Development Council by Mary Joan Aylward dated July 2006 | 27658 |

RULINGS/DÉCISIONS

(i)

Description

Paragraph No./No. de paragraphe

No. 121

Ruling of the Joint Review Panel on the motion brought forward by BC Nature and Nature Canada

26430 to 26436

UNDERTAKINGS/ENGAGEMENTS

| No. | Description | Paragraph No./No. de paragraphe |
|------------|--------------------|--|
|------------|--------------------|--|

**Motion by BC Nature and Nature Canada
Ruling of the Joint Review Panel**

--- Upon commencing at 8:30 a.m./L'audience débute à 8h30

26430. **THE CHAIRPERSON:** The Panel has its ruling on the motion that was raised yesterday by B.C. Nature and Nature Canada.
26431. Yesterday, B.C. Nature and Nature Canada referred to a 2008 paper by Sorensen et al. as an aid to questioning.
26432. Mr. Tollefson, representing B.C. Nature and Nature Canada, then requested that this aid be marked as an exhibit. Mr. Tollefson stated that it is a peer-reviewed paper, part of a body of knowledge and that the JRP had asked an Information Request referencing this report.
26433. Mr. Langen, representing Northern Gateway, stated that applying the standard of a peer-reviewed paper as a basis for marking the Sorensen et al. paper as an exhibit could result in the record being greatly expanded. He also referenced a previous JRP Ruling 95 that dealt with a similar request.
26434. The Panel is not convinced that the 2008 Sorensen et al. paper needs to be marked as an exhibit. There was limited questioning on the paper and the Panel does not require all peer-reviewed papers on subjects being dealt with in this proceeding on the record.
26435. The Panel confirms that it referenced the 2008 Sorensen et al. paper in IR 3.18. The reference to this report was previously provided in Northern Gateway's evidence. The Panel asked about an aspect of the report because Northern Gateway had referenced the report in their evidence.
26436. For these reasons, the Panel denies the motion to have the Sorensen et al. 2008 paper marked as an exhibit.
26437. Are there any preliminary matters which parties wish to raise?

PAUL ANDERSON: Resumed
COLLEEN BRYDEN: Resumed
COLIN BUCHANAN: Resumed
RAY DOERING: Resumed
TOM FIDDLER: Resumed
JEFFREY GREEN: Resumed

DAVID REID: Resumed
GORD ROZON: Resumed
JOHN THOMPSON: Resumed
MICHAEL PRESTON: Resumed

26438. **MR. LANGEN:** Good morning, Madam Chair and Panel Members.

26439. Mr. Preston gave a subject to check that he wants to provide some clarification on.

26440. **MR. MICHAEL PRESTON:** Good morning.

26441. In yesterday's transcript, paragraph 25578 to 25580, I was subject to check an appendix E that Mr. Tollefson was referring to.

26442. At the time, I was under the impression it was the comprehensive scientific assessment. Upon checking that appendix E, it was actually a different report that I was thinking of.

26443. While appendix E is an expanded summary of what Mr. Tollefson was referring to, the actual comprehensive scientific assessment is a report by Environment Canada 2011 and its title is "Scientific Assessment to Inform the Identification of Critical Habitat for Woodland Caribou (*Rangifer terandus caribou*) Boreal Population in Canada, 2011 Update, Ottawa, Ontario, Canada."

26444. **MR. LANGEN:** Thank you, Madam Chair.

26445. **THE CHAIRPERSON:** Ms. Niro, could we get a ruling number, please, for that ruling?

26446. **THE REGULATORY OFFICER:** That will be Ruling 121.

--- RULING NO./DÉCISION No. 121:

Ruling of the Joint Review Panel on the motion brought forward by BC Nature and Nature Canada

26447. **THE CHAIRPERSON:** Good morning, Mr. Leadem.

**Enbridge Northern Gateway Panel 4
Examination by Mr. Leadem**

**--- EXAMINATION BY/INTERROGATOIRE PAR MR. LEADEM:
(Continued/Suite)**

26448. **MR. LEADEM:** Good morning, Panel Members. Good morning, witness panel members.

26449. I'm going to continue where I left off yesterday and discuss with you from a general, broad perspective the environmental assessment that was performed on this project.

26450. And I want to begin with you, Mr. Preston, and pick up on something you referred me to yesterday. You may recollect that I questioned you -- or questioned the Panel -- with respect to confidence intervals around the wildlife habitat suitability modelling and you referred me to Exhibit B37 at Adobe 127.

26451. I wonder if we can just briefly go there. Maybe it was page 127. I'm not sure that if that was -- that's it, Table 9.6.5, "Prediction Confidence".

26452. And as I understand your response to me, this is the table that you had in mind?

26453. Is that correct?

26454. **MR. MICHAEL PRESTON:** That's correct.

26455. **MR. LEADEM:** When I review table, what I find is basically a subjective analysis.

26456. Is that not right?

26457. **MR. MICHAEL PRESTON:** What you see here is a qualitative categorization of prediction confidence of three categories of information for each species.

26458. So there's a category for the quality or the prediction confidence in our baseline data and availability and quality of that information. It's the prediction confidence of the actual effects assessment methods -- and noting the caption that is specific to habitat -- and our confidence prediction in the mitigation measures that would be applied to address effects for each species on habitat.

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Examination by Mr. Leadem**

26459. **MR. LEADEM:** Yes, thank you.

26460. I fully understand that is what it says but my question relates to how it was derived.

26461. Is it not the fact that this is a subjective analysis based upon your professional opinion rather than upon any statistical basis?

26462. **MR. MICHAEL PRESTON:** Another reference that I referred to yesterday in our discussion was also Exhibit B13-1 -- and that would be Adobe page 141 -- and that was speaking to the reliability of the habitat models themselves.

26463. That reliability qualifier is taken directly from the British Columbia Wildlife Habitat Rating Standards manual.

26464. And I could read out what those qualifiers are but, as noted in the previous table that we were just looking at, a moderate reliability qualifier, for example, would be -- excuse me, I just have to look up the exact wording that they've used.

26465. So a moderate reliability qualifier is that:

“The assessment for that particular species is based on available information from other studies, reports or expertise on species habitat relationships that are generally within British Columbia or nearby areas. Some of that information from ecosystems in the study area is mostly extrapolated from similar ecosystems and that there is no direct validation of that information through other field studies.”

26466. **MR. LEADEM:** But, basically, when I look at this table we have in front of me, Table 9-74, you would have to agree with me that the foundation for that table would be your professional opinion; is it not?

26467. What I'm looking for is that it's basically your subjective opinion that is the foundation for this table rather than any objective analysis such as statistical variance around the norm or any type of statistically driven results.

26468. I'm familiar, for example, with confidence intervals and 95 percent

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Examination by Mr. Leadem**

confidence intervals and I don't see that in this table here.

--- (A short pause/Courte pause)

26469. **MR. MICHAEL PRESTON:** When the Terrestrial Ecosystem Mapping and the Wildlife Habitat Rating Standards are applied, there is actually no reference in either of those two manuals with respect to confidence intervals, standard error, standard deviation.
26470. The use of statistics, standard error or whatever you want to refer to be it variance, the reference for assessing the reliability of that information directly referred to in the manual as an accuracy or in reference to reliability qualifiers, these are semi-qualitative subjective, expert-based rankings that are applied.
26471. **MR. LEADEM:** Yes.
26472. **MR. MICHAEL PRESTON:** And they are fed by the information that has gone into building these; they are fed by the quality of the information, the assessment of the actual mapping; they are fed by the kinds of information that we collected from the field when we were with the field mappers; they are supported by existing peer-reviewed technical grey literature and government report information on species/habitat relationships and they are then supported also by our own field studies.
26473. **MR. LEADEM:** One final question on this, just so I'm clear, the person or parties that's responsible for putting on the L, the M, the H on that Table of 9-74 would have been yourself or someone within your consulting firm; is that fair to say?
26474. **MR. MICHAEL PRESTON:** These ratings are applied by a team of experts who have an extensive background with one or more of the species that have been used as key indicators.
26475. So it is a team-based decision based on all of the inputs that I previously mentioned to come to that -- to that qualifier.
26476. **MR. LEADEM:** And just to be clear -- and I'm sorry to be so belabouring on this point but I still haven't gotten the clear response I'm looking for -- the team that you refer to is in fact your team.

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26477. You did not farm this out, for example, or send it out for peer review by any other biologist or any other outfit. It was Stantec or AMEC that derived this Table; is that right?

--- (A short pause/Courte pause)

26478. **MR. MICHAEL PRESTON:** The ratings that are provided in this table were provided by Stantec employees who are part of the wildlife assessment team.

26479. This table, along with the rest of the application and the description -- and there is additional description in the environmental assessment on how this reliability assessment was derived -- has been available both for public review, both for review by the JRP and other intervenors and there's been a lot of opportunity and we have received little in the way of feedback on the confidence of these rankings.

26480. **MR. JEFFREY GREEN:** I'd also like to add that, in relation to particularly mitigation measures and I guess a related measure which is prediction confidence, in the environmental assessment not just for wildlife, for each of the effects but for all valued environmental components, we describe why we think the certainty or confidence in mitigation measures is low, moderate or high and we describe in words why we think it's low, moderate or high in terms of prediction confidence.

26481. So there is descriptions in the environmental assessment for every valued environmental component as to why we arrive at these conclusions.

26482. I would like to say that that's not typical of a lot of environmental assessments. We've been open and transparent in why we think that that's case and I think that's not typical of what we see in many EAs in British Columbia or in Western Canada.

26483. **MR. LEADEM:** Thank you for that, Mr. Green.

26484. You mentioned in your response the fact that you were looking at confidence intervals based upon mitigation measures. Is it not the case that you have low confidence in the current mitigation measures for effects, for mitigation effects, on caribou, grizzly and wolverine?

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26485. **MR. JEFFREY GREEN:** First of all, we did -- they're not confidence limits. They're qualitative rankings and we describe why we think a feature or mitigation measures or prediction confidence is low, moderate or high.
26486. You're right, we did conclude that our prediction confidence for caribou, grizzly bear and wolverine was low and we describe why we think that is the case.
26487. As a result of that prediction in confidence and the mitigation confidence, Northern Gateway has committed to a follow-up program which is consistent with the *Canadian Environmental Assessment Act*.
26488. **MR. LEADEM:** That's the compensation program that you alluded to yesterday?
26489. **MR. JEFFREY GREEN:** As Mr. Anderson referred to yesterday, compensation is only one part of that.
26490. There's actually four components to the caribou -- for caribou as an example. There's the protection plan, what we call the "restoration plan" which is how we restore habitat along the right-of-way, there's the compensation plan for how we restore habitat off site -- so it's an offset -- and then, most importantly in relation to your question, is the monitoring of effectiveness of those features as well as the caribou. So that's the follow-up.
26491. Monitoring and follow-up under the *Canadian Environmental Assessment Act* are different beasts and, in this case, it would actually be referred to as "follow-up".
26492. **MR. LEADEM:** Yes, I thank you for that answer.
26493. And sticking with your answer for the time being, the follow-up, the monitoring that you alluded to, I understand that Northern Gateway has committed to doing this monitoring as a follow-up measure.
26494. The question I would have is: Who would be monitoring the monitors?

--- (A short pause/Courte pause)

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Examination by Mr. Leadem

26495. **MR. LEADEM:** Madam Chair, while they're looking for the answer, the table that I alluded to -- I'm not intending to go there but it's for your reference -- is Table 9-86. It's the Table of Confidence in Mitigation Measures.

--- (A short pause/Courte pause)

26496. **MR. PAUL ANDERSON:** So, Mr. Leadem, if I could, I'd like to address your question around who's monitoring the monitors.

26497. And when it comes to compliance and commitment tracking in our Application in Volume 7A, in Section 6 under "Communication", we outline detail plans for things like environmental inspection during construction, verification by independent third parties and the development of a compliance database, that includes commitments that are made in the Application and through this process and throughout the regulatory process that will be tracked to completion.

26498. In addition to that, from the regulators' point of view, the Joint Review Panel and the National Energy Board felt they have detail processes in place to ensure compliance. Certificate condition compliance, for example, there's specific commitments that Northern Gateway has made that we expect to see would be continued as commitments -- or, sorry, as conditions to the certificate.

26499. They are typically linked to milestones for projects. For example, before start of construction, you may have to fulfill a number of conditions. So those need to be complied with with different vehicles so that we can proceed for -- through to construction or leave to open for as other examples. And this condition compliance is part of the Auditor General of Canada, he can -- they can ensure that they are strictly complied with.

26500. When it comes to follow-up programs and monitoring, which I think is specifically your question, environmental conditions at the time of construction and post-construction are monitored and compared with baseline information and this information is collected and will continue to be collected prior to the commencement of construction and then through construction and into operations; post-construction monitoring.

26501. So these monitoring plans will be submitted as we expect would be conditions of certificate and would need to be submitted to the Board and as part of the public record and so they could be -- you know, they are looked at from the

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Examination by Mr. Leadem**

-- and approved by the National Energy Board.

26502. In addition to that, we've made commitments in terms of third-party research scientific advisory and so the research, working through the universities and other academics, to help set up the program to ensure that it's scientifically credible and that we would ensure that are monitoring and have a scientific reliability with respect to the results that we collect.
26503. So I think there is good checks and balances within the process to ensure that we -- that what we set out to do is complete and that we can monitor through to -- through to operations all of the commitments that we've made and look, really, at the effectiveness of mitigation.
26504. **MR. LEADEM:** Thank you for that extensive answer, Mr. Anderson.
26505. My question was actually of much more limited scope but I appreciate the depth of your response.
26506. Let me take it one step further: Can Northern Gateway commit to a program of funding research and, to some of the species that may be impacted by your project -- and I'm thinking specifically of some of the species that are in decline and may need some assistance, such as the woodland caribou or the white sturgeon, marble murrelet, species such as that.
26507. Is Northern Gateway prepared to make a commitment to actually fund, first-hand, independent science research into the protection of critical habitat and the preservation of these species?
26508. **MR. PAUL ANDERSON:** I think we're more than prepared to make a commitment; we have funded research through several different groups, especially with respect to caribou, as an example.
26509. We would continue to look at opportunities for research and for other enhancement opportunities and, as I've said, we've already done some of that funding and we would continue to look at opportunities to do so.
26510. **MR. LEADEM:** And that would be funding to an independent agency as opposed to a consultant that provides primary services to Northern Gateway; is that not right?

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26511. **MR. PAUL ANDERSON:** Yes, that is right. We have done it to a -- to third-parties or we have provided funding to third-parties in the past.

26512. We've also made some commitments in respect of research with respect -- especially to -- on the marine environment but also on the terrestrial environment to fund what we characterize as a research chair to help guide the research, especially with baseline data collection and cumulative effects assessment and those types of larger issues.

26513. So we would look -- we would look to that kind of continued research because we think it's very important.

26514. **MR. LEADEM:** All right.

26515. I want to back now to my analysis and discussion with you about the approach that you used with respect to the ESA and I want to specifically focus upon cumulative effects.

26516. Would you agree with me that a definition of "cumulative effects" are changes to the environment caused by an action in combination with other past, present or future human actions?

26517. **MR. JEFFREY GREEN:** I will respond to that.

26518. That is -- I haven't checked the Act specifically but I would say that's a very close approximation to what's in the *Canadian Environmental Assessment Act*.

26519. **MR. LEADEM:** Yeah, it's actually word-for-word what's in there.

26520. I just wanted to make sure we have a proper foundation for the questions that follow. Thank you, Mr. Green.

26521. Would you agree with this proposition: that incremental effects may be significant even though the effects of each action, when assessed independently, are considered insignificant?

26522. **MR. JEFFREY GREEN:** I would agree in theory.

26523. And that, as I said yesterday, is the purpose of doing a cumulative

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- effects assessment, is to look at small incremental changes and determine whether they will act with other similar types of effects and result in a significant cumulative effect.
26524. **MR. LEADEM:** Now, rather than focusing upon the incremental effects, has the Proponent, through its consultants or of its own volition, focused or decided to -- has it taken into consideration the following integrated ecosystem-based approach towards assessment as opposed to an incremental-based assessment?
26525. **MR. JEFFREY GREEN:** I would like to ask you to explain what you mean by “an integrated-based approach”.
26526. **MR. LEADEM:** Have you, for example -- you’ve defined VECs for a number of -- you know, the value of ecosystem indicators or components.
26527. Have you considered the interactions between VECs?
26528. **MR. JEFFREY GREEN:** I would say, yes, we have considered the interactions.
26529. There -- as an example, we would look at water quality changes, both chemically and physically, things like sediment, that would, in turn, would be incorporated into the fisheries analysis.
26530. If we predict changes in fisheries populations, it could be carried up to perhaps wildlife. So there are interactions between.
26531. Another example is effects on air quality and subsequent effects on vegetation. So there are interactions within the current environmental assessment.
26532. **MR. LEADEM:** All right, let’s take it a couple steps further.
26533. Have you considered the synergistic interactions among activities in coming to your conclusion about incremental effects?
26534. **MR. JEFFREY GREEN:** Synergistic effects are probably the most difficult effect to assess, and the science on that is very poor.
26535. I would say where we think there is some potential, we would have

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- considered it. Again, this is a very broad question and it would be more useful if we're to speak about a specific example.
26536. **MR. LEADEM:** Well, let's see if I can take it further then by way of an example.
26537. Let's start with your project and just looking at your project. Basically, unlike a logging operation, for example that may take trees from a polygonal feature, your proposal is basically a long line of some 1,000 kilometres in length, cutting through places where there's no line right now.
26538. And so, essentially, what you're proposing in a long linear disturbance feature upon the landscape going from Bruderheim to Kitimat.
26539. I have you so far?
26540. **MR. JEFFREY GREEN:** Yes.
26541. **MR. LEADEM:** So it's distinct in a sense that the linear feature of it, as you've alluded to earlier, Mr. Green, is a very distinctive aspect of this project.
26542. And so unlike a project such as a logging project, which comes to mind because B.C. is full of them, you've got to account for the fact that you're going to be building a straight line through sometimes pristine territory; is that not right?
26543. **MR. JEFFREY GREEN:** So in relation to pristine territory, I've said several times previous to this that the number of areas in which we are actually crossing pristine territory is very limited.
26544. We've spent a great deal of time focusing the routing of the pipeline along existing linear disturbances and, in many cases, we're directly parallel to things like forestry roads or existing pipeline right-of-ways.
26545. There are several areas where, yes, we are crossing what I would refer to as "pristine areas".
26546. **MR. LEADEM:** But if we can take it down to the area where you're paralleling existing rights-of-way, your proposal -- let's take a concrete example. It may not be -- for example, if we look at a caribou trying to cross a linear feature

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and if you're paralleling a linear feature the caribou may, for example, cross the road without getting hit by the truck but it may go across your pipeline and get eaten by wolves.

26547. And so what I'm trying to understand is: To what extent have you given some thought to this synergistic effect of your pipeline proposal in conjunction with other already developed proposals?
26548. **MR. JEFFREY GREEN:** I'll use the linear feature density analysis as an example. I think that's an analysis that does actually do what you're talking about.
26549. It's -- while we're measuring a specific linear feature and the density of that linear feature, it's representative of multiple types of effects.
26550. We spoke yesterday to how it can represent the potential to increase predation, it represents a degree of disturbance on the landscape and, in combination with our habitat analysis, it -- I think we're getting exactly at what you're speaking to.
26551. And in our environmental assessment, we not only just assess the three major effects to wildlife that we talked about yesterday, habitat -- indirect -- indirect habitat loss, movements and linear feature density or mortality risk, but we also spoke to what we would call "combined effects" of the project.
26552. And we talked to cumulative effects. And we also talked to combined cumulative effects in the environmental assessment.
26553. **MR. LEADEM:** Are you familiar with environmental assessment that proceeds on ecosystem approaches?
26554. An integrated ecosystem approach as opposed to an incremental effect approach?
26555. **MR. JEFFREY GREEN:** I personally am not aware of any examples of environmental assessments for major projects.
26556. The only place I've seen an approach to what you were referring to as an integrated approach is in land use planning exercises where we're looking at either a land use planning exercise or perhaps a conservation planning exercise.

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26557. **MR. LEADEM:** I want to turn back again to -- and I thank you for that answer, but I'm going to move away from cumulative effects assessment and go back to the modelling that I discussed with Ms. Bryden, Mr. Preston and yourself, Mr. Green, yesterday.
26558. And I still want to get a response to validation of the model that you used for wildlife habitat and, to some extent, I think I've gotten a response with regard to the data that you derived from field studies but, essentially, would you agree with me that every model is predicated upon emulation of reality?
26559. That a model is not the same thing as what exists in reality and what we're trying to do with a model is approximate to the best extent possible what actually exists, what's real on the ground.
26560. **MR. JEFFREY GREEN:** In the last Panel, Dr. Matt Horn actually spoke to what is a model in relation to the specific model he was doing.
26561. And you're correct, a model is a best case representation of what we think might occur.
26562. It's not reality and, despite the best attempts of many scientists over the past several decades, I would say that no model really emulates the natural environment very accurately -- or realistically I think would be the word you're using.
26563. So we do use this as an indicator and we use multiple lines of evidence. I think it's very clear in the environmental assessment for wildlife, we've used multiple lines of evidence in some cases. For example, grizzly bear, we've not only looked at habitat quality changes, we've looked at changes in core security habitat and we've looked at linear feature density.
26564. So we're looking at multiple ways the way the project could affect a species and then speaking to combined effect.
26565. **MR. LEADEM:** Would you agree with me that there's a certain amount of uncertainty built upon -- built into any model?
26566. **MR. JEFFREY GREEN:** Of course.

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26567. I think in every model produced by any individual there is a degree of uncertainty.

26568. And the way we've addressed it, as Mr. Preston has said, is we presented our models. We have provided technical data reports describing those models.

26569. That is not the case for many other environmental assessments where not only are the models shown but our rankings are shown and we've got mapping products to support them.

26570. **MR. LEADEM:** Just a second -- Mr. Anderson seems -- are we okay here?

26571. **MR. PAUL ANDERSON:** Getting there. Thank you.

26572. **THE CHAIRPERSON:** We're all watching you, Mr. Anderson.

--- (Laughter/Rires)

26573. **MR. PAUL ANDERSON:** It's just a cough.

26574. **THE CHAIRPERSON:** If you need to take a break, we're happy to break.

26575. **MR. PAUL ANDERSON:** I'm fine now, thank you.

26576. **MR. LEADEM:** Sorry, Mr. Green.

26577. We're getting some cough drops for Mr. Langen.

--- (A short pause/Courte pause)

26578. **MR. LEADEM:** One way to remove the uncertainty that's implicit in any model is to do more data collection.

26579. Would you agree with me, Mr. Green?

26580. **MR. JEFFRY GREEN:** I'll answer by saying I've never worked on an environmental assessment in my career in which people haven't asked us to

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- collect more information.
26581. More information is always better. The challenge is to collect the appropriate amount of information to allow you to do an adequate assessment.
26582. **MR. LEADEM:** And that leads me to my next line of question which is with respect to the selection of KI's, key indicators.
26583. I very much -- I suppose if we ask two biologists to pick key indicator species for this particular project that we get different lists from each one of them.
26584. So would you agree with me that the selection of key indicator species for wildlife is very much a subjective professionally-based opinion response?
26585. **MR. JEFFREY GREEN:** Actually, I wouldn't agree with you on that.
26586. The definition of "valued environmental components" and "key indicators" relates to a number of societal values and, in selecting key indicators, of course, the types of effects and the wildlife group or the group we're dealing with, the valued environmental component, is very important.
26587. But we also take into consideration other elements and I think it's important to stress those.
26588. We do listen to input from aboriginal groups in their traditional land use studies and in our consultation -- or engagement activities. We listen to the public when they speak to us through engagement activities. We listen to regulators.
26589. And through all of those different groups, we pull together lists that we think represent a good suite of species that not only represent the breadth of the environmental component you're looking at, but they also represent the types of effects that we think are most important to this project.
26590. **MR. LEADEM:** Well, the 31 key indicator species that you identified for this project were, in fact, selected by you or your team of biologists.
26591. Is that not right?

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26592. **MR. JEFFREY GREEN:** The final selection was made by us but it included all of the groups I spoke to earlier.
26593. In 2005 and 2006, Northern Gateway held a number of workshops across the entire length of the route and, in 2006, they actually created what we call “environmental workbooks”.
26594. And those workbooks included the early form of the environmental assessment. And, most importantly, included details on our scoping, including the selection of valued environmental components, and those were provided online. There was also workshops held in two different locations along the pipeline and one in Prince Rupert.
26595. So the two focussed on pipelines, one focussed on marine. And the intent of the work in 2005 and 2006 was to test the scoping of the environmental assessment with groups that chose to participate in those processes.
26596. **MR. LEADEM:** So, essentially, you’re telling me this was an iterative process that drove the KI selection.
26597. Is that what you’re saying?
26598. **MR. JEFFREY GREEN:** Yes.
26599. I would say that we listened to the concerns of people not only in relation to the species they are concerned about but the types of effects they’re concerned about.
26600. And the selection of valued environmental components -- and key indicators in particular -- it’s important to take into account the types of effects we’re going to see.
26601. In some cases, people may have a concern about a species but the potential for an effect from this project on that species may be very low and, therefore, it’s not an appropriate indicator.
26602. The criteria by which we select the valued environmental components are outlined in the environmental assessment and we could go to those if you like.
26603. **MR. LEADEM:** No, I don’t think I need you to drill down distinctly

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- to that.
26604. I think I'm going to leave the dialogue with respect to environmental assessment and move on to specific topics that I'd like to cover with this Panel. If at any time you feel the urge to go back to the general discussion that we've had, Mr. Green, by all means, please do so. I'm not precluding that.
26605. I want to talk about the Telkwa herd of caribou and I'm going to approach this this way, that I'm going to ask a series of fundamental baseline questions and then proceed to my direct questions of you.
26606. Would you agree with me that the Telkwa herd of caribou -- woodland caribou -- is migratory and migrates between summer and winter feeding areas?
26607. **MS. COLLEEN BRYDEN:** That is our understanding of their ecology, yes.
26608. **MR. LEADEM:** And that the pipeline proposal -- so I should say the pipelines proposals because there's two of them -- actually transects the habitat for Telkwa caribou in the order of anywhere between 48 and 56 kilometres, depending upon where you pick the kilometre post for beginning and ending?
26609. I can take you to maps, if you want, to verify the actual numbers.
26610. **MS. COLLEEN BRYDEN:** That's approximately my understanding as well of the -- the section of the Telkwa caribou herd range that's transected by this project.
26611. **MR. LEADEM:** And that analysis predicated upon the "Route Revision U" as we've come to call it; is that right?
26612. **MS. COLLEEN BRYDEN:** That's right.
26613. **MR. LEADEM:** We heard some evidence from an earlier Panel that Route Revision V is being considered, specifically with respect to relocation of the route around the Morice River area, higher up into the plateau, which would potentially impact habitat frequented by the Telkwa herd; is that correct?
26614. **MS. COLLEEN BRYDEN:** I can speak generally to that route revision.

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26615. It moves the route further south so -- firstly, I'd like to establish that the route transects the lower third of the caribou herd range -- Telkwa herd range. It's actually outside the area of the proposed wildlife habitat area for that herd.
26616. And so the Route V Revision moves further south into -- still within the Telkwa herd range, still outside the wildlife habitat area and the area it moves into is subject to some logging and road development.
26617. **MR. LEADEM:** When assessing -- Mr. Doering, do you have other things that you want to add to the Route Revision V, you were the one who brought it up?
26618. **MR. PAUL ANDERSON:** Mr. Doering has the most familiarity with the routing in that area and I just want to find a map that he could go to that would be the best map to use.
26619. **MR. LEADEM:** My understanding is that the Proponent is going to be submitting Route Revision V.
26620. **MR. RAY DOERING:** Yes, that's correct, before the end of this year.
26621. **MR. LEADEM:** Does the Proponent have any plans to revisit -- comment on with that route revision the ungulate winter habitat that might be impacted by the relocation?
26622. **MR. PAUL ANDERSON:** Yes, we would provide an assessment of environmental effects of the reroute versus the existing route.
26623. **MR. LEADEM:** Thank you for that commitment, Mr. Anderson.
26624. Focusing now back again, Ms. Bryden, upon the Telkwa herd, I'm going to read a proposition to you and ask you if you agree with it.
26625. When assessing the significance of effects at a population level, 1 percent threshold of population change is a significant trigger; would you agree with that?

--- (A short pause/Courte pause)

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26626. **MS. COLLEEN BRYDEN:** We didn't specify a population threshold with respect to our assessment so I -- I don't agree with 1 percent.

26627. **MR. LEADEM:** Okay.

26628. One (1) percent was used by the consultants with respect to bird populations; was it not?

26629. **MS. COLLEEN BRYDEN:** That's right, for bird populations, it was used in the ESA.

26630. **MR. LEADEM:** So I'm wrong to simply take that 1 percent and try to apply it as a rule for population change to something such as the woodland caribou?

26631. Is that what you're telling me?

26632. **MS. COLLEEN BRYDEN:** As I indicated, we didn't specify a threshold for any mammal species related to change in population.

26633. As we've discussed previously, the intent of the mitigation measures proposed for caribou and within caribou herd range is to -- the objective is a no net increase in linear feature density and, as we've discussed before, we link linear feature density to mortality risk for caribou.

26634. **MR. LEADEM:** So if I have that answer correctly then, you did not look at the Telkwa herd, for example, that we're focusing upon in to see what effect, if any, your proposal would have upon the population of that herd; is that right?

--- (A short pause/Courte pause)

26635. **MS. COLLEEN BRYDEN:** As we did for the other four caribou herds that are affected by the project, we looked at change in habitat availability, potential change in movement patterns and change in mortality risk.

26636. We did that for this herd as well.

26637. **MR. LEADEM:** My understanding is that the recovery strategy that

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- was recently filed into evidence as Exhibit E6-2 does not cover the Telkwa herd nor any of the other herds in British Columbia; is that right?
26638. **MS. COLLEEN BRYDEN:** It's a boreal caribou strategy so it only addresses boreal caribou and this project only intersects one boreal herd; that's the Little Smoky herd in Alberta.
26639. **MR. LEADEM:** The other -- the caribou in B.C. are sometimes known as "mountain caribou" or "woodland mountain caribou" or sometimes "southern mountain caribou".
26640. The terms seem to be used interchangeably; is that right?
26641. **MS. COLLEEN BRYDEN:** The B.C. naming system is a bit complicated.
26642. The Telkwa, Narraway, Quintette and Hart Ranges herd are all part of the Southern Mountains National Ecological Area which is a federal designation. Those caribou in that NEA (National Ecological Area) are the subject of a developing recovery strategy.
26643. Within that -- nested within that is the provincial nomenclature for caribou. The -- we have mountain caribou, northern caribou and boreal caribou and, within the Southern Mountain National Ecological Area are both mountain and northern caribou.
26644. So, again, somewhat confusing nomenclature. The Telkwa herd is a northern caribou eco-type.
26645. **MR. LEADEM:** By whatever name, the species is endangered according to the *Species at Risk Act* and listed as such by COSEWIC and listed as such under the Act; is that not right?
26646. **MS. COLLEEN BRYDEN:** They're actually listed as threatened under COSEWIC ---
26647. **MR. LEADEM:** Sorry.
26648. **MS. COLLEEN BRYDEN:** --- and on Schedule 1.

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26649. **MR. LEADEM:** Right.
26650. And, in British Columbia, they're red-listed as I understand it; is that right?
26651. **MS. COLLEEN BRYDEN:** The mountain caribou are red-listed and northern eco-type are blue-listed currently in the province; so Telkwa herd is blue-listed.
26652. **MR. LEADEM:** My understanding of the Telkwa herd, in terms of individuals, is that the actual population of that herd is something below 100 individuals; is that not right?
26653. Mr. Green seems to be shaking his head 'yes'.
26654. **MS. COLLEEN BRYDEN:** I was just going to get you the exact number but, yes, below 100.
26655. I think 78 was the most recent count a couple of years ago.
26656. **MR. LEADEM:** That, of course, was my understanding as well.
26657. Has the Proponent, of its own volition, or through its consultants, undertaken any studies with respect to the interaction between any of the woodland caribou herds that would be impacted by this proposal and predation by wolves?
- (A short pause/Courte pause)
26658. **MR. PAUL ANDERSON:** The funding that I referred to earlier that Northern Gateway had provided was for radio telemetry work on caribou that tried to address some of those issues.
26659. **MR. LEADEM:** Thank you, Mr. Anderson. Does the Proponent have any intention of filing with this Panel, any of the results of that -- those studies?
26660. **MS. COLLEEN BRYDEN:** The project Mr. Anderson referred to that Northern Gateway provided funding to is a -- it's an ongoing project, it's called the Central Rocky Mountains Caribou Research Program. It's led by Dale

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- Seip from the B.C. Ministry of the Environment. There's many contributors to the research.
26661. So some of the reports we've actually seen in the course of these proceedings, population census reports, some of the AQs that the BC Nature Group provided were outcomes of that research, funded under that umbrella. So there's a variety of -- again, the work's been going since 2002.
26662. **MR. LEADEM:** Yes, I understand that it's ongoing work, but the question is does the Proponent intend to file any of the results of that work even in -- if it's of a preliminary nature, with this Panel? By Panel, I mean the Joint Review Panel of course.
26663. **MS. COLLEEN BRYDEN:** Well, certainly in the ESA, the wildlife section of the ESA, we've referenced reports that were produced on the basis of that research.
26664. **MR. LEADEM:** And the specific question that drove this line of questioning or this line of response, had to do very much with predation by wolves. So I heard evidence that you've done some census work. Is the focus of some of this research actually the interaction between predation by wolves and existing caribou herds that may be transected or impacted by this pipeline?
26665. **MS. COLLEEN BRYDEN:** Just to be clear, Northern Gateway didn't actually conduct the work, they contributed funds to a group that conducts the work.
26666. **MR. LEADEM:** Understood.
26667. **MS. COLLEEN BRYDEN:** And part of that work has been related to caribou/wolf interactions. Again, Dr. Dale Seip being the lead, he worked in cooperation with a university in Alberta to study wolf/caribou interactions for the Narraway herd and a couple of herds farther south outside our area. But the Narraway herd would be the one that intersects with this route. And there is work available -- progress reports, et cetera, publicly available that are related to that research.
26668. **MR. LEADEM:** Does any of the work that you've discussed and alluded to, Ms. Bryden, bear any relevance with respect to the Telkwa herd that we've been discussing?

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26669. **MS. COLLEEN BRYDEN:** No, this -- it's a -- the Central Rocky Mountains is the eco region that this work addresses and the Telkwa herd's outside that area.
26670. **MR. LEADEM:** Does the Proponent have any proposals on the table with itself or with other independent scientists to actually investigate the Telkwa with regard to either wolf predation interaction or potential impacts of the pipeline upon its territory and habitat?
26671. **MR. PAUL ANDERSON:** As I mentioned before, we are looking to fund a research chair that would identify gaps in the data or gaps in the existing information to better understand the interactions and that might be one of them. That wouldn't be something that we would necessarily prescribe, but if that was something that was determined to be a gap then we would certainly look into funding that.
26672. And I think Mr. Green has something to add with respect to wolf interaction and linear feature density.
26673. **MR. JEFFREY GREEN:** Yes. What I'd like to sort of refer back to is that Northern Gateway has been working with the B.C. Ministry of the Environment. And the Telkwa caribou herd is one of the focal areas of the work we're doing right now to look at caribou habitat restoration and caribou habitat compensation which we've spoken to.
26674. As part of that work, we're -- I think the assumption that we have to make is that linear features contribute directly to the wolf predation issue. And through that work, identifying -- we're doing work right now, for example, to map in detail as many of the linear features as we can from current disturbance remotely sent sources, Landsat and the like, so that we can present an accurate map for that. And then working with B.C. Ministry of the Environment and the road users groups, the intent is to find ways to remove appropriate amounts of access in that region.
26675. Now, I don't know whether the B.C. Ministry of the Environment is undertaking work on wolves. In this particular area, I do know in the Hart Range, they are undertaking work both on reduction of alternate prey and they're considering work on wolves in that particular range.

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26676. Ms. Bryden was just saying that they're also doing similar work for the Quintette and the Narraway.
26677. **MR. LEADEM:** All right. Thank you.
26678. I'm going to move on to discuss with you plants. And I want to do this in the context of the powerline easements, and I might have to get Mr. Doering's assistance here with regard to the power line easements.
26679. My understanding is that there's at least four power line easements that will be servicing the pipeline throughout its length in British Columbia; is that right?
26680. **MR. RAY DOERING:** Yes, Mr. Leadem. We'll try to bring up a set of maps that were provided as part of a request for additional information by the JRP that does describe the proposed powerline routes.
26681. Generally the powerline routes would supply the -- well, of course each of the pump stations, each of the intermediate pump stations, but also the tunnel construction area.
26682. **MR. LEADEM:** M'hm.
26683. **MR. RAY DOERING:** Powerline is required to provide the power for the potential use of tunnel boring machines to construct those tunnels.
26684. **MR. LEADEM:** I don't know if we need to go there directly. I'd be happy to -- if you need to go there, Mr. Doering, but in the interest of efficiency -- let me just say this, or ask you this.
26685. My understanding is that there's a powerline easement known as the Tumbler Ridge, a powerline easement known as Houston, Bear Lake being the third, and then Hoult Clore being the fourth, is that right?
26686. I just want to make sure that I've got my evidence right before I start questioning you on yours.
26687. **MR. RAY DOERING:** Yes, you described the powerlines that we would need to construct the major powerlines within B.C.

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26688. **MR. LEADEM:** Yes. And would these be new rights-of-way, new easements that you would have to construct; in other words that you would have to once again create a linear feature by way of a powerline to connect from an existing power source directly to the right-of-way formed by the pipeline right-of-way?
26689. **MR. RAY DOERING:** Perhaps I could start with the proposed Houston pump station. The preference for the Houston pump station would be to utilize the existing three-phase power that runs to Huckleberry Mine.
26690. **MR. LEADEM:** Yes.
26691. **MR. RAY DOERING:** That will be our preference, rather than constructing a new powerline to the Houston pump station sites -- the Houston pump station site. Otherwise for the Tumbler Ridge pump station and for the tunnel area, those would be new powerlines; so that's correct.
26692. **MR. LEADEM:** And Bear Lake?
26693. **MR. RAY DOERING:** Bear Lake would have a very short connection to the major hydro corridor that runs north and south, just on the east side of Bear Lake, so it's a very short section of powerline that would need to be constructed there.
26694. **MR. LEADEM:** Okay. So then my question, there is a question about plants in all of this and I'll probably ask you, Mr. Reid, because I think you're the plant guy on the panel, do I have that right?
26695. **MR. DAVID REID:** Yes, that's correct.
26696. **MR. LEADEM:** Is it not the case that the rare plant analysis and survey that was done by the Proponent and its consultants did not in fact do rare plant surveys of any of the powerline easements that we've just been discussing?
26697. **MR. DAVID REID:** Rare plant surveys were conducted along the powerline routes for ones that you mentioned. These surveys were conducted in 2008 and 2009, and we did not find any listed rare plant species.
26698. **MR. LEADEM:** I'm going to ask Madam Clerk to pull up -- and I apologize, because I don't think I gave you this reference -- B3-5, at page 8-91, I

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think. I apologize, I don't have Adobe numbers. It would be about 30 pages beyond that one. One prior, I think.

26699. **MR. DAVID REID:** Madam Chairman, we had a little miscommunication a moment ago; we did not conduct rare plant surveys along these powerlines because the routes were not identified in the field or clearly on the maps, at the time that the rare plant surveys were undertaken.
26700. And therefore we have committed to conducting rare plant surveys along the center line of these final lines, following the approval of this application.
26701. **MR. LEADEM:** Thank you, that saves me from having to point out that error in the ESA. Thank you for that clarification, Mr. Reid.
26702. So I take it then that the Proponent, through its consultants, is committed to actually conducting those rare plant surveys and filing that with the Joint Review Panel in due course?
26703. **MR. PAUL ANDERSON:** Yes, we are.
26704. **MR. LEADEM:** I'd like to go from plants to fish.
26705. **MR. LANGEN:** Sorry, Madam Chair, if I may. For clarification, I the witnesses replied to Mr. Leadem's question that they would be filing those rare plant studies with the JRP. I believe Mr. Reid's evidence was that those studies would be done after the route was selected, which presumably is post-certificate.
26706. So the studies would -- I'd ask the witnesses to confirm, but the studies would be filed with the NEB, not the JRP?
26707. **MR. PAUL ANDERSON:** Yes, that's correct. Sorry, I missed that subtlety. We would be doing these work -- or this work would happen likely post-certificate. We may do some work in this year, but for the most part it would be post-certificate.
26708. **MR. LEADEM:** And so to be clear on that then, Mr. Anderson, those results or those studies would not in fact be referred to this Joint Review Panel, it would be done some time after certification is granted, if at all?

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26709. **MR. PAUL ANDERSON:** I'm just struggling with the word "if at all". We would be doing that post-certificate. We may do some -- I alluded that we may be doing some work over the next little while, in the next year, to collect certain information baseline studies, centerline work, but the bulk of that work would happen post-certificate and would be, I presume, filed with the National Energy Board as part of the overall process going forward.

26710. **MR. LEADEM:** Thank you.

26711. Let's move on to fish, shall we? And I want to approach it in a different way with you, by actually calling up into evidence something that my client has filed, and I'll be going -- through your counsel I hope that you were directed to review Dr. David Levy's report on pipeline proposals and interaction with some -- it's D66-3-6.

26712. The starting proposition is that has the panel had an ample opportunity to review this report, which has been filed on evidence?

26713. **MR. PAUL ANDERSON:** Yes we have.

26714. **MR. LEADEM:** Thank you.

26715. The line of questions that I'm going to propose is to read to you a passage from the report and then to ask you whether you can confirm and adopt that as evidence that you would accept as well.

26716. Let's begin at Adobe page 7, and towards the bottom, please. And the sentence I'm going to read to you for adoption is this one:

"In summary, approving, constructing, and operating pipelines in Northern B.C. will expose salmon habitat in the Upper Fraser, Skeena, and Kitimat watersheds to increased impacts."

26717. Agree or disagree?

26718. **MR. PAUL ANDERSON:** I would disagree with that. A lot of the work that is present in this paper presumes that a spill is inevitable, and we certainly believe that that is not the case.

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26719. **MR. LEADEM:** So you would disagree with -- constructing a pipeline in Northern B.C. will expose salmon habitat in the Upper Fraser. Let's be specific about your pipeline. So you would disagree that the construction of the Northern Gateway pipeline would expose salmon habitat in the Upper Fraser to increased impacts?

26720. **MR. PAUL ANDERSON:** Through construction we'll be using mitigation measures, such as crossing techniques to avoid impacts to watercourses. During construction, in-stream construction there is the potential for impact to the aquatic ecosystems.

26721. But through fisheries' habitat compensation which we know will be required as part of our section 35.2 authorizations through the *Federal Fisheries Act*, we would have no net increase or no net harmful alteration to fish habitat.

26722. **MR. LEADEM:** The next sentence says:

“Even the best pipeline construction and operating practices are insufficient to eliminate all risks.”

26723. Agree or disagree?

26724. **MR. PAUL ANDERSON:** Our focus is to bring that risk level down to its absolute lowest level that's practical for a project like this. There is always the chance for some risk, use the example of a spill during construction, these things can happen. So there is the chance that there could be some risk, albeit small and extreme, and I would characterize it as low to zero risk.

26725. **MR. LEADEM:** Could we move on to Adobe page 12, please?

26726. I'm going to show you, from the report, in sequence, three diagrams, and the question for each of these diagrams is going to be the same. Is this a fair and accurate representation of the streams with salmon contained in it?

26727. And to be clear, what we're looking at on the record is a depiction of the Upper Fraser River system and depicted in pink are the streams with salmon presence. So the question is, is this fair and accurate representation, to the best of your knowledge, with respect to the presence of streams within the Upper Fraser River watershed?

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26728. **MR. PAUL ANDERSON:** The resolution on this drawing is not terribly good but it does accord with what our findings and our baseline work would suggest as well.
26729. **MR. LEADEM:** Figure 4, on Adobe page 13.
26730. Is this a fair and accurate representation of the salmon -- presence of salmon in streams in the Skeena River watershed?
26731. **MR. PAUL ANDERSON:** Yes, with the same caveat.
26732. **MR. LEADEM:** And finally, the next figure, at Adobe page 14, Figure 5; is this a fair and accurate representation of the presence of salmon in the Kitimat River watershed in relation to that particular watershed?
26733. **MR. PAUL ANDERSON:** Yes.
26734. **MR. LEADEM:** Could we go to Adobe page 26 of that same report, please, under the heading "5.2 Hydrocarbon Toxicity", third paragraph down begins with this sentence:
- "Polycyclic aromatic hydrocarbons (PAHs) that are dissolved in water from either floating or submerged petrochemicals are the most toxic components for fish and invertebrates."*
26735. Agree or disagree?
26736. **MR. PAUL ANDERSON:** That's out of my expertise. The spill Panel -- the Operations Panel that preceded this one spoke more specifically to oil spills.
26737. **MR. LEADEM:** Is that outside the area of your expertise as well, Mr. Green, or Mr. Slaney from the back row might be able to assist?
26738. **MR. JEFFREY GREEN:** It's outside my area of expertise and I agree with Mr. Anderson, is that we spent some time describing the effects on fish as described in the ecological and human health risk assessment.
26739. **MR. LEADEM:** Okay. I'll move on then.

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26740. And I think the last reference is page 36 of the report, I think it's Adobe 41. I'm looking for a sentence that begins, "The risk" -- I think -- scroll down, please. Yeah, it's right there.

"The risk of impacts from pipeline construction and failures should not be assessed and managed in isolation of other environmental impacts."

26741. Agree or disagree?

26742. **MR. PAUL ANDERSON:** We would agree to that.

26743. **MR. LEADEM:** I want to now shift away from this exhibit and talk about the conservation units of various salmon within the Upper Fraser watershed. The analysis that you did with respect to fish and potential impacts upon fish, did it specifically focus upon conservation units as they're defined in the Wild Salmon Policy for Fraser River salmon?

26744. **MR. PAUL ANDERSON:** No, we did not. We focused on the zone of influences at the various watercourse crossings along the route.

26745. **MR. LEADEM:** Is the Proponent aware, either of itself or through its consultants, that there are various conservation units of Fraser River sockeye, which are steadily in decline or known as red zoned, for example, the Stuart, Trembleur/Takla Conservation units, the Endako Conservation unit and the Francois Lake conservation unit, they are all in decline and are at risk.

26746. **MR. PAUL ANDERSON:** Yes, I am generally aware of it and other members of the panel are more familiar with it. But our assessment was based, as I mentioned, was habitat-based and it was independent of the state of the stock.

26747. **MR. LEADEM:** Is the panel or its consultants aware of the fact that the Chinook Conservation Unit for the Endako and Nechako Rivers is declining and is also at risk?

26748. **MR. PAUL ANDERSON:** Yes, we are.

26749. **MR. LEADEM:** Is it fair to say that, with respect to the fishery values that much attention and focus of your work in the ESA has been upon the actual water crossings and impacts on the potential impacts upon fish at water

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crossings?

26750. **MR. PAUL ANDERSON:** Yes, exactly.

26751. **MR. LEADEM:** And that, with respect to the 669 fish-bearing streams, the Proponent -- either of itself or through its consultants -- did an analysis of the various water crossings and came up with a rating system to determine what type of crossing would be used for each of those 669 crossings?

--- (A short pause/Courte pause)

26752. **MR. PAUL ANDERSON:** Based on guidance from the Department of Fisheries and Oceans, we developed a risk management framework to do, among other things, identify water crossing techniques.

26753. **MR. LEADEM:** And did you also involve DFO with respect to the selection of criteria or the actual selection of using trenched versus trenchless crossing methodology for any of the river crossings that may contain fishery values?

26754. **MR. PAUL ANDERSON:** Our consultation with DFO has been quite extensive.

26755. It started with how we set up the methodology. We worked through the risk management framework with DFO and we've shared the results of that -- the sensitivity rankings. We also shared with them our proposed crossing techniques and had a number of discussions around that.

26756. **MR. LEADEM:** Could I ask you, Mr. Anderson, to identify for the record, individuals within the Department of Fisheries and Oceans with whom you've spent the most time in having discussions of the nature that you've just described?

26757. **MR. LANGEN:** Madam Chair, I question the relevance of who specifically at DFO Northern Gateway had discussions with.

26758. **MR. LEADEM:** Madam Chair, it goes to the credibility of these witnesses.

26759. They've described that they've had numerous consultations; I'm

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simply trying to explore that with him to determine with whom and on what occasion.

26760. **THE CHAIRPERSON:** Mr. Leadem, you're welcome to explore the credibility of the witnesses but we don't believe that you need to do it by citing -- by having the witnesses cite names of the people they've met with at DFO.

26761. **MR. LEADEM:** Thank you.

26762. When you say that you've had numerous discussions with representatives from Department of Fisheries and Oceans, can you identify for the record approximately how often and when those discussions would have occurred?

--- (A short pause/Courte pause)

26763. **MR. PAUL ANDERSON:** There's been so many meetings, I've -- just trying to get a good reference for you, sir.

26764. I can, first of all say, to you that since 2005, I think we've been meeting with DFO on at least a semi-annual basis. And in Exhibit B47-17, the attachment to JRP IR 8.18, I believe it's a 13-page summary of our meetings that we've held with the Department of Fisheries and Oceans and, in some cases, with others.

26765. **MR. LEADEM:** Thank you, that's helpful. I'll go there later.

26766. Is it fair to say that the exchange of information between you and the Department of Fisheries and Oceans was not simply confined to formal meetings but also took the form of email exchanges between you and Department of Fisheries and Oceans officials?

26767. **MR. PAUL ANDERSON:** Well, certainly, there were email correspondence.

26768. For the most part, though, that email correspondence was to set up meetings and also to forward meeting notes from those meetings; those types of things.

26769. We tended to keep most of our conversations at the meeting level but

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- there would certainly have been phone calls and emails in addition to those for a number of reasons.
26770. **MR. LEADEM:** Were there formal notes kept at the meetings?
26771. **MR. PAUL ANDERSON:** I'd say for the most part there were.
26772. There were typically, at the very least, just documentation of the meeting and what the topics were discussed, but in some more detailed correspondence -- we recently had a meeting with DFO and sent meeting notes and they were more -- they were quite comprehensive.
26773. So it all depends on the types of meeting -- what was discussed at the meeting and what the purpose of the meeting was for.
26774. **MR. LEADEM:** Thank you.
26775. Getting back to river crossings and watercourse crossings, we had some evidence already on this point and I'm going to pick up and ask you from the biological perspective following up some of that evidence.
26776. And, Mr. Doering, you were on the Panel where I discussed with Mr. Cavers at length with respect to horizontal directional drilling and I'm going ask some questions now about the potential impacts upon the habitat of fisheries that could be caused by HDD.
26777. You may recollect that Mr. Cavers and I had a discussion about fracking out and the loss of fluids from the actual HDD drilling operations.
26778. Do you recall that, Mr. Doering?
26779. **MR. RAY DOERING:** Yes, I recall that discussion.
26780. **MR. LEADEM:** All right.
26781. So setting out that context now, I want to turn to the biologists on the Panel and ask you what steps, if any, will the Proponent take to prevent the kinds of frac-out that might introduce fluids and harmful substances into watercourses during the course of drilling operations?

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26782. **MR. RAY DOERING:** The main mitigation to ensure frac-outs don't occur is really inherent in the crossing technique and the drill path taken and the engineering that's done for these -- for these crossings which is quite extensive.

26783. What we would typically see at a directional drill crossing is water sampling to see if any drilling fluids were inadvertently returned to the watercourse, and you would often see emergency preparedness and response planning around -- in the event of a frac-out.

26784. **MR. LEADEM:** Madam Chair, if I may, I have one final question about water crossings, a specific water crossing, and then I think it might be appropriate for us to take our mid-morning break.

26785. I want to focus upon the water crossing at the Sutherland River, which is at KP856.2.

26786. I'll let you get there so that I can ask you some specific questions about it.

26787. The question is: The present proposal for that water crossing is for a trenched methodology; is it not?

26788. **MR. PAUL ANDERSON:** The proposed crossing method at the Sutherland crossing is an isolated crossing method which, yes, it is a trenched crossing method and the flow of the stream is isolated using one of several methods.

26789. **MR. LEADEM:** And at the site of the crossing at the Sutherland River the proposal intends to go through some gravel as I understand it. A trench would actually be -- or the pipeline will be -- go through some gravel. It's mostly a gravel crossing; is that not right?

26790. **MR. PAUL ANDERSON:** Yes, that's right. The -- for the -- predominantly the surface is gravel, a gravel bed. And then we're not entirely sure what would be below that, but typically when you're doing a crossing of this type in an isolation fashion you would take the gravel material and store that separately from the underlying material. And then replace it in the reverse order when it's backfilled.

26791. **MR. LEADEM:** Is the Proponent aware that that particular site

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shows and is an excellent spawning -- consists of excellent spawning gravels for both trout and some salmonid species -- other salmonid species?

--- (A short pause/Courte pause)

26792. **MR. PAUL ANDERSON:** Yes, we understand that there are -- there is spawning habitat in that reach of the river and that's why it has been ranked relatively high in our sensitivity ranking. It's also why we propose to do it in an isolation technique in the wintertime, during low flows and outside of the spawning window, and also remembering that we do have a fairly wide corridor through the pipeline in terms of detailed routing.

26793. So we'd certainly look at avoiding spawning areas to the extent possible within that 1 kilometre corridor as part of our detailed routing process.

26794. **MR. LEADEM:** Would the Proponent also commit to taking a look at a trenchless methodology for crossing the Sutherland River as part of its analysis?

26795. **MR. RAY DOERING:** As part of the -- what we call the SWAT process that Mr. Anderson was describing our strategic watercourse crossing assessment team, it's a multi-disciplinary approach where we gather a range of data for each of the watercourse crossings. And so there's further assessment work that's required for several watercourse crossings, particularly around the geotechnical elements.

26796. And that could involve not only further assessment of LiDAR but it could actually involve borehole investigation and that may prove to demonstrate that a trenchless crossing would be possible, but it would require some further investigation at that site to determine whether a trenchless crossing a -- what we might call for the Sutherland River is a very small watercourse in fact -- something like a bored crossing may be more practical than a full horizontal directional drill for example. But that would be part of ongoing assessment.

26797. **MR. LEADEM:** So I take that as a qualified yes; you would take another look at the crossing methodology employed -- or being proposed at the Sutherland River?

26798. **MR. RAY DOERING:** Yes, we would. And again, subject to what we would see there from a geotechnical perspective and any tweaking of the

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alignment that might be possible to accommodate that, we would -- we would definitely look at that.

26799. **MR. LEADEM:** Thank you. This is an appropriate time.

26800. **THE CHAIRPERSON:** Thank you, Mr. Leadem.

26801. We'll take our morning break and be back at 10:20, please.

--- Upon recessing at 10:05 a.m./L'audience est suspendue à 10h05

--- Upon resuming at 10:25 a.m./L'audience est reprise à 10h25

26802. **THE CHAIRPERSON:** I believe we're ready to get underway again.

26803. Mr. Leadem, please continue with your questions.

26804. **MR. LEADEM:** Thank you, Madam Chair.

PAUL ANDERSON: Resumed

COLLEEN BRYDEN: Resumed

COLIN BUCHANAN: Resumed

RAY DOERING: Resumed

TOM FIDDLER: Resumed

JEFFREY GREEN: Resumed

DAVID REID: Resumed

GORD ROZON: Resumed

JOHN THOMPSON: Resumed

MICHAEL PRESTON: Resumed

--- **EXAMINATION BY/INTERROGATOIRE PAR MR. LEADEM:**

(Continued/Suite)

26805. **MR. LEADEM:** Before I go on to the next topic I wanted to come back just briefly to a response that I received when we were discussing horizontal directional drilling and some of the environmental steps and measures that the Northern Gateway would be taking around watching out for frac-outs.

26806. And I believe that evidence was given to the effect that there would be water sampling taken in order to ensure that fluids were not leaking from the borehole into the watercourse.

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26807. Is that right, Mr. Doering or Mr. Anderson?
26808. **MR. PAUL ANDERSON:** I believe that was my response. And I believe what I said was that we frequently see that at watercourse crossings, that water sampling would be done downstream of the trenchless technique.
26809. **MR. LEADEM:** And I realize that we don't have the final plans in place in terms of how the actual construction would proceed, that's coming later but would the Proponent commit to actually conducting water sampling at the operations for HDDs?
26810. **MR. PAUL ANDERSON:** We would typically see that as a requirement in permits, but -- and there are some cases where it may not be necessary, but in larger watercourses where there's lots of flow, for example, we would commit to doing it in there. And we'd have it documented within our pipeline environmental effects monitoring program where we would commit to doing that sampling.
26811. **MR. LEADEM:** Is there a lag period between the time that the water samplings are taken and the results obtained?
26812. **MR. PAUL ANDERSON:** Typically you would use turbidity monitoring. The bentonite clay that's the main constituent of the directional drilling fluid is basically clay. And so the material, when it comes into the watercourse, would increase the turbidity of the watercourse and so you would sample for turbidity, which is a field sampling method.
26813. **MR. LEADEM:** So you would be sampling for TSS, the total suspended solids?
26814. **MR. PAUL ANDERSON:** Turbidity is a surrogate for TSS.
26815. **MR. LEADEM:** Yes.
26816. **MR. PAUL ANDERSON:** So turbidity uses light refraction through a sample, so it would -- it basically can be correlated to TSS, but it's not the same thing.
26817. **MR. LEADEM:** I want to go back to fish and discuss two fish in

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- particular with the panel. And those are the two species of white sturgeon that could potentially be impacted by the proposal. I'm referring of course to the lake sturgeon of Alberta and the white sturgeon of British Columbia.
26818. There's an acknowledgement, I believe, by the Proponent, that these species are of concern. And they are in fact been recognized by COSEWIC and by Canada as endangered species under the species at risk legislation. Is that not correct, Mr. Green?
26819. **MR. PAUL ANDERSON:** Yes.
26820. **MR. LEADEM:** With respect to the Acipenser Transmontanus, the -- that's the white sturgeon that's found in British Columbia waters, does the Proponent commit to any research proposals and any fundamental independent research proposals in order to seek some methodology or seek some ways that we can set about reversing the decline of this particular species? My understanding is that this particular species has very low recruitment area, particularly in the Nechako and Stuart River systems.
26821. **MR. DENNIS LANGEN:** Sorry, Madam Chair. My friend had a lot in that question, perhaps he can unbundle it for us.
26822. **MR. LEADEM:** Well, let's start one-by-one then. I was hoping to save some time, but with respect to Transmontanus, the white sturgeon, will the Proponent commit to -- let me start it this way, sorry.
26823. Would you agree that that species in decline and is showing very low recruitment rates in the Nechako and the Stuart River systems?
26824. **MR. PAUL ANDERSON:** Yes, we would.
26825. **MR. LEADEM:** Would the Proponent commit to some research proposal that would set about determining causes for that decline in recruitment and potential impacts of its proposal upon the declining population of white sturgeon?
26826. **MR. PAUL ANDERSON:** We have not to date committed to doing any research on white sturgeon. With our commitment to do a trenchless crossing at the Nechako River, we would not see any impacts to white sturgeon. We have, in addition though, developed a protection plan for white sturgeon in -- that we

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- have recently talked to DFO about. And we submitted a draft plan in the attachment to JRP IR 10.4.
26827. **MR. LEADEM:** What about with respect to the lake sturgeon in Alberta, that is, I understand, is found in the, I think, the Saskatchewan or Athabasca River systems?
26828. Sorry, I misspoke. It's found in the North and South Saskatchewan Rivers.
26829. **MR. PAUL ANDERSON:** Yes, so that would be applicable to our North Saskatchewan River crossing. And again, our sturgeon protection plan would be applicable to the North Saskatchewan River crossing.
26830. **MR. LEADEM:** Does the Proponent consider both of these species, the lake sturgeon in Alberta and the white sturgeon in British Columbia, to be a sensitive fish during the construction phase of the operation?
26831. **MR. PAUL ANDERSON:** What we attempt to do is to focus our mitigation, our crossing techniques and the timing of construction to minimize that sensitivity during the period of the crossing.
26832. **MR. LEADEM:** A question more to the biologists, but if you would know the answer Mr. Anderson, please weigh in.
26833. Are you familiar with the population of the actual -- the population in the Nechako Basin of the white sturgeon? Can you speak to any degree of precision as to numbers?
26834. **MR. PAUL ANDERSON:** We're generally familiar with some of the work that had been done in the past but we're not -- we could not tell you the current population numbers of that population.
26835. **MR. LEADEM:** Would you agree with me to this extent; that it's believed that the white sturgeon is found in the Stuart River from its confluence with the Nechako upwards to the entry into Stuart Lake?
26836. **MR. PAUL ANDERSON:** I'm sorry; I similarly I don't have information in front of me around the distribution of that population.

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26837. **MR. LEADEM:** All right.
26838. I want to move on as my final topic which is the construction environmental protection management plan. If I can identify it quickly as the EPMP, we all know what we're talking about, is that fair?
26839. **MR. PAUL ANDERSON:** Sorry, I just wanted to correct myself. Mr. Slaney reminds me that we do have some information on distribution in the technical data report for the fisheries, for the fisheries discipline. So I just wanted to correct that; we do have some information in that document.
26840. **MR. LEADEM:** That would be exhibit -- what is it, Exhibit 11-1 -- 3-11-1, I believe -- B11-1. That's the TDR for the fish and fish habitat?
26841. **MR. PAUL ANDERSON:** Yes, that's correct.
26842. **MR. LEADEM:** All right.
26843. So if we can move on now to the EPMP and the first question of course -- can we refer to it by its acronym rather than having to spell out all the time that we're actually looking at the environmental protection management plan. Are you okay with that, Mr. Anderson?
26844. **MR. PAUL ANDERSON:** Yes, we are.
26845. **MR. LEADEM:** All right. And my understanding is that what we have presented in Exhibit B3-19 is actually the preliminary plan. That there will be a final plan that would be submitted before construction -- 60 days before construction; do I have that right?
26846. **MR. PAUL ANDERSON:** Yes, you do. And in fact, there may be multiple plans based on the type of construction and the timing of construction. So there may be a series of EPMPs that would be submitted as part of the program.
26847. **MR. LEADEM:** All right. I have some general questions about the EPMP in its preliminary stages that I hope that we can start to get answers about.
26848. The EPMP makes mention of entities called environmental inspectors. At this stage is it -- are these presumed to be employees of Enbridge?

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26849. **MR. PAUL ANDERSON:** There could be a number of arrangements for environmental inspectors during construction and I've worked on different projects with different approaches. Many times they are contract employees or contractors to Northern -- to the Proponent, and sometimes they're third-party inspectors.
26850. The reference in Volume 7A, section 6 on Communication and when it talks about environmental inspectors, sees it as either employees or contractors to Northern Gateway.
26851. Mr. Fiddler, do you have anything to add to that?
26852. **MR. TOM FIDDLER:** No, that would be consistent with our approach.
26853. **MR. LEADEM:** The EPMP goes on to talk and discuss at some length with respect to environmental audits conducted. My questions relate to who conducts those audits, are they likewise employees and/or contractors of Northern Gateway?
26854. **MR. PAUL ANDERSON:** Again, I've seen that done in several different ways. I've seen a very senior environmental inspector with a very detailed inspection experience do audits across the various spreads or various construction activities. And I've also seen third-party audit process.
26855. We haven't made a commitment one way or the other at this point. And we are investigating what the needs are and we would outline that in our pipeline environmental effects monitoring program.
26856. **MR. LEADEM:** Would you agree with me that in the interests of transparency and accountability that an independent third-party auditor would actually convey a lot more weight than somebody that's employed by Northern Gateway?
26857. **MR. PAUL ANDERSON:** I'd like to point out that it is quite common practice to see inspectors, whether they be from the National Energy Board or the Provincial Permitting Authorities, come out and do inspections as well. So that is typically -- that obviously is third-party to us and that is very typical for -- and I would expect to see that on a project of this magnitude.

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26858. **MR. LEADEM:** But with regard to the environmental auditors, the question relates to would it not make sense from a transparent and an accountability perspective to actually have these auditors be independent third-parties as opposed to employees and/or contractors of Northern Gateway?

--- (A short pause/Courte pause)

26859. **MR. TOM FIDDLER:** Mr. Leadem, with regard to independent audits, and I've talked to this around quality management systems and the same applies to environmental management systems within Enbridge proper the larger organization, we have specialist functional departments with expertise relative to various aspects of projects as we move into a dedicated project team in the execution phase.

26860. It is very common that our specialist teams that our resources that establish the performance and expectation standards will perform independent within Enbridge independent audits and observations. And again, very often they are the same individuals that will participate directly with NEB staff as they do progressive audits or other regulatory officers that do audits as well.

26861. **MR. LEADEM:** So I take it at this early juncture, the thinking from Northern Gateway is that it will simply use the existing infrastructure of audit branch and inspection branch that it's done for -- typical other projects. Is that what you're saying, Mr. Fiddler?

26862. **MR. TOM FIDDLER:** We haven't concluded our deliberations on this -- the environmental management systems and programs, similar to the evolution that'll happen with the preliminary environment protection and management plan. That will be something that evolves and gets filed in its entirety relative to components of the work.

26863. So what I mean by that is pipeline spreads, the terminal, the tunnels, the pump stations and the like will likely all have individual environmental protection management plans and programs. And the programs will include quality assurance programs of an audit nature.

26864. **MR. LEADEM:** Right.

26865. And I understand what you're telling me, Mr. Fiddler, but I guess my

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- question still comes back to this, will you commit to actually taking a look at hiring somebody that's independent from Enbridge, totally, to take a look at the actual auditing from an environmental perspective as the construction proceeds?
26866. **MR. TOM FIDDLER:** Yes we will consider that as one of the approaches to management -- the quality assurance if you will, and control of our environmental compliance.
26867. **MR. LEADEM:** Thank you.
26868. The environmental components that make up the EPMP, as I understand it, were identified in consultation with regulators, participating Aboriginal groups, resource managers, scientists and the public at large; is that right?
26869. **MR. PAUL ANDERSON:** Yes that's correct.
26870. **MR. LEADEM:** And with respect to the public at large, the apparatus for conveying the public at larges' concerns with respect to ongoing issues that may arise in the construction phase of the operation -- or construction phase, were -- was that the CABs that you referred to earlier, Mr. Anderson?
26871. **MR. PAUL ANDERSON:** That would be a component.
26872. We've -- we get a lot of input from the public, whether it be through emails, phone calls to our Northern Gateway line. In some cases they identify concerns that they might have with environmental impact and -- so we make sure that there's nothing missing from our EPMP that might -- so that we can cover off the concerns that are raised from a whole host of input.
26873. Certainly, the CAB process has been an important one for identifying local concerns in areas along the pipeline.
- (A short pause/Courte pause)
26874. **MR. PAUL ANDERSON:** Mr. Green reminds me that it was certainly part of our open house process.
26875. We had quite a lot of information brought in on environmental concerns and talked about the environment in many of the open houses.

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26876. And I think Mr. Green referred to a document earlier as the -- a discussion book related to the environment that went through many of our practices that we are proposing and sought input from a large range of people.
26877. So we have been fairly -- we cast the net quite widely when it comes to gathering information on potential environmental concerns.
26878. **MR. LEADEM:** I wonder if we could now look at two tables that are contained in the EPMP. If I could ask that Table 4-2, which I think is at Adobe page 22 or 23. Thank you.
26879. This is a table of provincial permits, conditions, approvals, and notification requirements that is contained in the EPMP.
26880. And if we can scroll down. We see that there's a number of permits that must be obtained from Alberta. Is that right, various agencies in Alberta?
26881. Has the Proponent started those discussions with Alberta with an eye towards obtaining those permits or is it too early in the process for that to have begun?
26882. **MR. PAUL ANDERSON:** We have had many conversations with the provincial governments.
26883. They've been typically at a higher level than at the permitting but we have had discussions around -- you know -- how would we -- how might we set up permitting and what would be applicable or not applicable.
26884. But the real details of permitting and when they would be obtained and the information requirements in order to obtain those permits would come at a later time.
26885. We have been in the process of getting permits for things like investigative use permits. So some permits have been obtained for the work that we've already done.
26886. **MR. LEADEM:** If we could scroll down to British Columbia we can see that there's a similar array of agencies in British Columbia, starting with the *Forest Act*, for obtaining cutting permits, the Integrated Land Management

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Bureau for protecting areas of old growth, and various other agencies that are identified under the *Land Act* for example.

26887. Have discussions commenced with respect to obtaining these permits from British Columbia?

26888. **MR. PAUL ANDERSON:** I think it would be a similar response to my previous one; I was actually grouping both Alberta and B.C. in my last answer.

26889. **MR. LEADEM:** Does the Proponent anticipate any difficulties obtaining any of these permits from the Province of British Columbia?

26890. **MR. PAUL ANDERSON:** There are information requirements that are required for permitting. We would need to comply with providing all of the information for those permits and working to ensure that our practices met permit conditions.

26891. But no, we don't -- we don't expect to see difficulty in obtaining permits once our certificate has been granted.

26892. **MR. LEADEM:** Under the *Water Act* there's some mention made of permits that would be necessary in order to conduct hydrostatic testing and for withdraw of waters from water sources in and around construction camps and the like.

26893. Typically that's done in the context of any project that you've constructed to date. Is that fair to say?

26894. **MR. PAUL ANDERSON:** Yes, there are requirements for water withdrawal, either permits, or in the case of Alberta, there's a Code of Practice that needs to be followed. But yes, there are requirements around water withdrawal in both provinces.

26895. **MR. LEADEM:** If we can scroll up now to the federal permitting system, Table 4.1?

26896. Sorry; Table 4.1, which is -- I think -- a couple of more pages. It's the provincial -- Thank you. If we can just go to the top of it? That's a continuation of Table 4.1. Thank you.

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26897. So, likewise, the EPMP identifies the various permits that would be necessary in order to enable construction to proceed; is that not correct?
26898. **MR. PAUL ANDERSON:** It does but I would clarify that these are not all permits.
26899. In some cases, there are conditions or notification requirements or just requirements in respect of, you know, for example, Section 20, providing safe passage for fish is not a permit that's required, it's a requirement.
26900. **MR. LEADEM:** Yes.
26901. Now, if we can look through this list of potential federal permits conditions, approvals and notification requirements, we'll note that the first agency is the National Energy Board and the Act or regulation is the *NEB Act*.
26902. The Act that's in the EPMP presently is the Act as it was at the time that this was filed, and -- let me just get an answer to that before I move on.
26903. **MR. PAUL ANDERSON:** So I'm not sure I totally understood your question but the -- when the Application was filed, we were using the Acts that were in place at that time.
26904. **MR. LEADEM:** Yes.
26905. And, to your knowledge, the -- to the knowledge of the Proponent, the NEB Act has been modified and changed since then?
- (A short pause/Courte pause)
26906. **MR. PAUL ANDERSON:** I don't think anyone on the Panel can speak to section changes within the *National Energy Board Act* and how those numbers have changed or how the clauses within it have changed.
26907. **MR. LEADEM:** Right.
26908. And I'm not asking you for any legal opinion or any legal advice or anything at this stage, my question relates to: Does the Proponent intend to file an amended EPMP to detail the exact changes that may have occurred with respect

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to the various pieces of federal legislation that are itemized here?

26909. **MR. PAUL ANDERSON:** We've already committed to filing an EPMP as we get closer to construction and that would be current with the legislation and the requirements that are prevailing at that time.
26910. **MR. LEADEM:** Right, and I think that answers my second question which is whether you would be guided by the regulatory scheme in place at the time or whether you would go back to the regulatory scheme at the time that this was proposed?
26911. **MR. PAUL ANDERSON:** I'm afraid I'd need to seek legal advice on that. I'm not an expert on legal matters.
26912. **MR. LEADEM:** And I'm hardly going to ask Mr. Langen about -- or turn the question around to him at this stage.
26913. Mr. Langen is inviting me to do so. I would dearly like to know the answer to that but I'll have to -- I'll have to let that answer stand for itself, Mr. Anderson.
26914. Isn't it the case that Enbridge has been lobbying the federal government specifically with respect to the *Fisheries Act*, the *National Energy Board Act*, the *Navigable Water Protections Act* to affect these changes in legislation to enable the project to proceed?
26915. **MR. LANGEN:** Madam Chair, I question the relevance of the question.
26916. We don't have anything on the record with respect to changes in the legislation. The witnesses have indicated that they don't know or don't have knowledge of changes to the legislation, specifically, and they're not in a position to comment.
26917. I don't see the relevance with respect to the actions of Enbridge and whether or not Enbridge is lobbying or not lobbying. I don't think that's relevant to your determination of the Application of Northern Gateway.
26918. **THE CHAIRPERSON:** Mr. Leadem, any comments?

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26919. **MR. LEADEM:** Yes, I do have some comments.
26920. Your job under Section 52, as it's presently construed, is to provide advice to Cabinet with respect to the certification of this particular proposal going forward. Inherent in that Section 52 is an analysis of what constitutes the public interest which is something that can be broadly defined and, for the purposes at this stage, we're not quite sure exactly what it means.
26921. I would submit that, with respect to defining the public interest, what the Proponent is attempting to do is to weave a very thin thread of trust implicit in all of its representations to this Joint Review Panel and, essentially, that trust very much devolves to a question of can we trust the Proponent to do the right thing?
26922. Can we trust the Proponent to actually carry out the environmental measures it says it will carry out?
26923. As a matter of public interest, it strikes me -- and it's my submission, with respect -- that trust can only be conveyed and public interest satisfied if we know that the Proponent is not actually lobbying the federal government to achieve a different state of affairs in terms of its original commitments and proposals and promises.
26924. And I submit, with respect, that I should be allowed to conduct this line of questioning. The Panel may not have any knowledge of it but it is a fair question to ask in order to enable this Panel to know whether it's in the public interest to certificate this project.
26925. **MR. LANGEN:** I think my friend is suggesting that -- I'll put this way -- the Northern Gateway has put a significant amount of material on the record. It is putting up at least eight witness panels to have that evidence tested. Those witness panels are under oath and affirmation.
26926. My friend seems to be suggesting that, in some way, there may be some nefarious intent on behalf of Northern Gateway to not say what it intends to do or not to be truthful in what it says it's going to do.
26927. The witnesses are here, they're under oath and they're attesting to the evidence that's put on the record.
26928. His language was that there might be a different state of affairs and

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I'm struggling with that. He's implicit in that, is that, again, he's suggesting there's some nefarious intent. The witnesses are here, the record is extensive, and Northern Gateway is affirming under oath that it can be trusted in what it says.

26929. So if my friend has an issue with credibility of the witnesses then he's fair to test that but to try to reach beyond that, I don't think is proper and I don't think it's relevant to what you have to determine.

26930. You have to determine whether this project is in the public interest based on the record before you and that record, again, is extensive, and the witnesses are here to be tested on it, under oath.

26931. **MR. LEADEM:** Madam Chair, if I could just respond to one suggestion that I'm imputing nefarious conduct to this Panel or to any of the other panels, and I believe that, with all respect to Mr. Langen, he conflates my argument.

26932. I do not intend to attribute nefarious motivation to this Panel or any other Panel.

26933. The question simply relates to this: that when considering the public interest and considering the various representations that have been made by this Proponent, that the public at large is entitled to know exactly what is being proposed here in terms of the environmental commitments that this Proponent is prepared to make.

26934. And, essentially, we would like to know if the Proponent is committed to actually conducting and carrying out the proposal as framed or whether it's also embarked upon a course of action to actually change the legislative landscape to enable this project to be built without the necessary environmental guidelines that may restrict the project.

26935. That's simply the nature of my -- my suggestion of why the question ought to proceed. It's not to impute nefarious natures to anyone in particular or this Panel.

26936. **THE CHAIRPERSON:** Mr. Langen, the final, final word to you, please.

26937. **MR. LANGEN:** I take my friend at this word but he did -- in his

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response just now say whether Enbridge has embarked on a program or something to that effect, which again implies that there's something going on behind the scenes.

26938. And with all due respect, the Application is here, Northern Gateway is committed, as the witnesses have indicated under oath, to meet the requirements of the land, and this JRP and any subsequent law or any laws that are in place at the time.

26939. And I'll leave it at that. Thank you, Madam Chair.

26940. **THE CHAIRPERSON:** Give us a moment, please.

--- (A short pause/Courte pause)

26941. **THE CHAIRPERSON:** Thank you for your patience.

26942. Mr. Leadem, the Panel is questioning the relevance of the question but let's have you ask the question and then move on to your next line of questioning, please.

26943. **MR. LEADEM:** Actually, that was my last question so it's not a question of moving on.

26944. But just to -- and it's unfortunate I can't read back from the record what my question was but, essentially, it was to this effect and perhaps I should just restate it for the record.

26945. On behalf of Enbridge, is it not the case that Enbridge has been lobbying the federal government to affect changes, for example, to the *Fisheries Act* to enable the construction of the Northern Gateway Pipeline to be built without the necessary attendant former environmental measures that are detailed in the EPMP?

26946. **MR. PAUL ANDERSON:** I can tell you that I have not been involved in any meeting or any lobbying efforts with the federal or provincial government, nor have I been asked to have input into any planned meetings or efforts that were planned by Enbridge.

26947. I know that there was some efforts on behalf of Enbridge to try to seek

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- clarity on the regulatory side of things with respect to this new Omnibus Budget Bill but I'm not aware of any meetings with the federal government, DFO in particular, I think you specified, about changing the Act so it would accommodate the Northern Gateway Project.
26948. And nothing that we've seen to date with respect to new legislation or proposed legislation changes any of the environmental protection measures that we plan to implement during the Northern Gateway Project.
26949. **MR. LEADEM:** Thank you, Madam Chair.
26950. I'll take that up with another Panel at a later stage, just to put that on the record. I think when Mr. Carruthers comes back onto the panel. I intend to pursue this again and I'll just alert my learned friends to that.
26951. Thank you.
26952. **THE CHAIRPERSON:** Mr. Leadem, the Panel will assess it -- the Panel will assess at any time that you raise subsequent questions in this area, the relevance of it to this file.
26953. **MR. LEADEM:** Yes, thank you, Madam Chair.
26954. **MR. PAUL ANDERSON:** Thank you for your questions, Mr.
Leadem.
26955. **MR. LEADEM:** Just to thank the Panel for its responses.
26956. And I also want to single out Mr. Alex Barbour, your -- who's in charge of your French translation, who's provided me diligently with my headsets. I wish I could understand French so I could listen to these proceedings in French but I do find it useful to people who are having difficulty hearing in this room.
26957. **THE CHAIRPERSON:** Thank you very much for your comments,
Mr. Leadem.
26958. The next party is Enoch Cree Nation, Ermineskin Cree Nation and Samson Cree Nation, represented by Mr. Jeerakathil.

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26959. Mr. Jeerakathil, are you on the line at this point?

26960. **MR. JEERAKATHIL:** Yes, I am.

26961. **THE CHAIRPERSON:** Good morning.

26962. **MR. JEERAKATHIL:** Good morning.

26963. **THE CHAIRPERSON:** Are you also attached to WebEx, are you able to see the displays on the screens?

26964. **MR. JEERAKATHIL:** Yes, I can.

26965. **THE CHAIRPERSON:** Terrific.

26966. Please proceed with your questions then, Mr. Jeerakathil.

26967. **MR. JEERAKATHIL:** Thank you.

--- EXAMINATION BY/INTERROGATOIRE PAR MR. JEERAKATHIL:

26968. **MR. JEERAKATHIL:** Please let me know if the -- the sound isn't working properly and I'll try to adjust my position.

26969. Good morning, Enbridge panel.

26970. My first question has to do with the ATK component of your application. And my understanding is that -- you know -- the pipeline will pass through quite a few First Nation and Aboriginal groups' traditional territory. And I have a question specifically with respect to Exhibit B40-3, which was a response to an information request.

26971. And, yes, that Table 1-1, is that a list of Aboriginal groups that Enbridge has identified through whose traditional territory the pipeline passes?

26972. **MR. PAUL ANDERSON:** Thank you for your question.

26973. I just want to make sure I'm pronouncing your name correctly; is it Mr. Jeerakathil?

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26974. **MR. JEERAKATHIL:** It's actually pronounced Jeerakathil, and it's phonetic; it's long, but phonetic.
26975. **MR. PAUL ANDERSON:** Jeerakathil?
26976. **MR. JEERAKATHIL:** Yes.
26977. **MR. PAUL ANDERSON:** Is that close enough? All right.
26978. **MR. JEERAKATHIL:** That's close enough.
26979. **MR. PAUL ANDERSON:** Thank you for your indulgence.
26980. I'm going to pass this question over to Dr. Colin Buchanan who has been very involved in our Aboriginal traditional knowledge studies until now.
26981. **DR. COLIN BUCHANAN:** Yes, good morning.
26982. This table that you're referring to is a table of Aboriginal groups that are involved in the ATK program to -- at one stage or another, and it does not necessarily reflect territories that the pipeline right-of-way passes through.
26983. **MR. JEERAKATHIL:** Do you have a list of that type of information contained in the record?
26984. **DR. COLIN BUCHANAN:** That, I think, would be a question best directed to the Aboriginal Consultation Panel.
26985. **MR. JEERAKATHIL:** To the Aboriginal Consultation Panel?
26986. **DR. COLIN BUCHANAN:** Yes, sir.
26987. **MR. JEERAKATHIL:** Okay. Maybe I will try one more question and you can let me know whether you can answer it as well.
26988. Do you know -- do you know -- do you have a general idea of how many rights holding groups traditional territory the pipeline passes through?
26989. **DR. COLIN BUCHANAN:** Just bear with us for a minute.

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26990. **MR. JEERAKATHIL:** Certainly.
26991. **DR. COLIN BUCHANAN:** The project is engaged with a large Aboriginal groups and it traverses a number of different traditional territories. Unfortunately traditional territories aren't defined by Northern Gateway, the nations and Aboriginal groups have unique territories and have not always shared the extent of these.
26992. So we're unable to say at this point -- give information about the number of traditional territories the project passes through.
26993. **MR. JEERAKATHIL:** But in your engagement with Aboriginal groups are you -- you may not have them all, but do you have a number that you know that it passes through?
26994. **DR. COLIN BUCHANAN:** Like I said, the project is engaged with a large number of Aboriginal groups, but I think that this is a question best directed to the Aboriginal Consultation Panel.
26995. **MR. JEERAKATHIL:** Can you advise me how many ATK studies have been completed as of today's date?
26996. **DR. COLIN BUCHANAN:** Just give me a moment.
26997. Approximately 35 ATK studies have been completed.
26998. **MR. JEERAKATHIL:** Thank you.
26999. If I could just refer you to Exhibit B2-34, which is Volume 5b of your application, PDF page 11, page 1-1. I hope that's the right reference. In particular I'm referring to a discussion of the NEB Filing Manual. Yes, on the WebEx you just have to scroll down a little bit.
27000. But there you cite the NEB Filing Manual and you set out four bullets that are required by that manual. And in particular I'm interested in the first two bullets, but I'm going to start with the second one.
27001. And that bullet says -- well, first of all the NEB Filing Manual requires that you have the identification of potentially affected Aboriginal groups, the

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spatial and temporal extent of their current use, and how the project would affect that use; and that's a requirement under the *Canadian Environmental Assessment Act*.

27002. Can you advise where in the application you have identified the spatial and temporal extent of the Aboriginal groups that we've been discussing, their current use?

27003. And in particular I'm looking for -- you know -- the spatial extent as well as perhaps the description in words about generally that -- you know, used along the pipeline right-of-way.

27004. If it's of any assistance to you I know that in Figure 1-1, in Exhibit B3-1, you include an ATK study coverage area. I don't know if your answer will address that or not, but that's there, if it's of assistance.

27005. **DR. COLIN BUCHANAN:** So I will point you to Volume 5a of the application that identifies the groups and the areas used by each group.

27006. **MR. JEERAKATHIL:** And does that contain a map?

27007. **DR. COLIN BUCHANAN:** There are maps on Volume 5a.

27008. **MR. JEERAKATHIL:** That set out the spatial and temporal extent of current use?

27009. **DR. COLIN BUCHANAN:** Not every group that engaged with the project shared the extent of spatial and temporal use. This was discussed in many of the ATK studies and that information was collected.

27010. Most of the ATK studies that were submitted to this project were submitted confidentially, and it was requested that that information was not to be disclosed publicly, but just for the use of the project and confidentially within the regulatory process.

27011. **MR. JEERAKATHIL:** Thank you.

27012. So I think what I understood you to say was that the spatial and temporal extent of Aboriginal First Nation group use was set out in ATK studies that you had completed; is that right?

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27013. **DR. COLIN BUCHANAN:** Yes.
27014. **MR. JEERAKATHIL:** And so would each of those ATK studies contain a map of that particular First Nations current use?
27015. **DR. COLIN BUCHANAN:** The ATK studies were submitted confidentially. There's spatial information contained in many of the ATK studies. I don't think it's appropriate to discuss what's contained on the particular studies in a public forum without ---
27016. **MR. JEERAKATHIL:** I don't intend to get into specifics at all. I'm just speaking in generalities at this point.
27017. Would it be possible -- did you attempt to sort of aggregate the information on a -- without names type of basis?
27018. **DR. COLIN BUCHANAN:** Sorry, can you repeat your question?
27019. **MR. JEERAKATHIL:** I mean, did you consider or attempt to aggregate the mapping or the use information on a no names type of basis, so just to delineate the areas without indicating the particular nation?
27020. **DR. COLIN BUCHANAN:** If I could direct you to Volume 5b, the volume we have up. And there's a -- there's a couple of figures -- and I'm sorry, I'm just trying to look up the Adobe pages for those now.
27021. Adobe page 21, please.
27022. **MR. JEERAKATHIL:** Yes.
27023. **DR. COLIN BUCHANAN:** Yeah. And that provides ATK study coverage along the right-of-way.
27024. **MR. JEERAKATHIL:** So are you saying then, in that figure, that the green area that is contained there sets out a current use area for First Nations impacted along the right-of-way. Is that what that represents?
27025. **DR. COLIN BUCHANAN:** That represents areas along the right-of-way for which ATK information has been collected through ATK studies to the

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- point that was submitted.
27026. I will note that the date on that is 2009 and that several studies have been completed since. So that's not current, there's additional information that's been collected since then.
27027. **MR. JEERAKATHIL:** Thank you.
27028. Can you confirm that you have not identified the spatial and temporal extent of current use by the Ermineskin and Samson First Nations through an ATK study?
27029. **DR. COLIN BUCHANAN:** ATK studies have not been completed by Ermineskin and Samson on the project.
27030. **MR. JEERAKATHIL:** Thank you.
27031. Just with reference to the diagram -- or sorry, the figure that you just pointed out and that's on WebEx, I'm wondering whether you could also refer to Figure 9-1, in Volume B3-6 -- sorry in Exhibit B3-6, Volumes 6a Part Two, Figure 9-1 which is PDF 21.
27032. And I know it's hard to have both of those up at the same time but my question relates to whether there's a difference between what's identified in Figure 9-1 as the regional effects assessment area and the green area that you just talked to me about in Figure 1-1, which is the ATK study coverage area. Are those areas the same or are they different or do you know?
27033. **DR. COLIN BUCHANAN:** I'm sorry, I'm just having a look at the figure you just pulled up and...
27034. **MR. JEERAKATHIL:** Certainly.
27035. **DR. COLIN BUCHANAN:** So this is a regional effects assessment area that was used for the biophysical disciplines. The regional -- there was a regional effects assessment area used for the ATK studies.
27036. Each Aboriginal group participating in the ATK study defined the -- their REAA independently, based on the extent of their traditional knowledge and traditional use in the area. So no, these are not the same.

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27037. **MR. JEERAKATHIL:** I'm just curious as to why the ATK study coverage area would be so narrow to the pipeline route. And is it -- was there a cut-off point that you deemed as relevant in terms of a distance from the pipeline route in reference to Figure 1-1?
27038. **DR. COLIN BUCHANAN:** So sorry, I should explain. The figure on 5b that we were looking at -- and Ms. Niro can you please pull up the previous figure? Yes.
27039. So this doesn't show the extent of ATK studies. What it shows is the -- let me try to explain this.
27040. It shows the extent along the right-of-way that ATK studies were completed. Now, ATK study effects -- the regional effects study area for ATK studies would, depending on the study in the community, occur further north and south of that. That just shows the extent of the right-of-way that has coverage for ATK studies.
27041. Have I made myself clear?
27042. **MR. JEERAKATHIL:** I see. So the -- is it fair to say that the width of the green area in that Figure 1-1 isn't meaningful, it's more the coverage along the right-of-way length that's meaningful? Is that fair?
27043. **DR. COLIN BUCHANAN:** Yes, that shows the coverage along the length of the right-of-way. Individual ATK studies would have more extensive coverage, a more extensive assessment area depending on the -- and these were defined by individual Aboriginal groups so it wouldn't be the same for every Aboriginal group.
27044. It wouldn't be like the one that we saw for the biophysical disciplines. It was 30 kilometres along the entire right-of-way. Different groups would identify different extents of their assessment area.
27045. **MR. JEERAKATHIL:** Thank you.
27046. I provided an aid to cross-examination to your counsel last night which is referred to as a reference guide determining whether a project is likely to cause significant adverse environmental effects. And it's a document produced by the

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Canadian Environmental Assessment Agency.

27047. **MR. LANGEN:** Mr. Jeerakathil, it's Mr. Langen speaking.
27048. **MR. JEERAKATHIL:** Yes?
27049. **MR. LANGEN:** Madam Chair, as Mr. Jeerakathil has indicated, we did receive this document last night at 9 o'clock local time. We did make an effort to distribute it to the witnesses. I'm assuming that they have it.
27050. I will note that the document is approximately 15 pages long. And in the electronic copy that we received, there was no highlighting for pinpoint. So I'm assuming the witnesses are able to speak to the document and if they're unable to, then off we go but we'll see.
27051. **MR. JEERAKATHIL:** Yes thank you, Mr. Langen. I do apologize for getting that to you late. I thought I'd be on a little bit later in the day or maybe tomorrow. So I do apologize for that.
27052. My questions are quite specific so I hope that the panel will be able to assist me. So would you agree -- are you familiar with the reference guide? I guess that's the first question that I'd ask you.
27053. **MR. JEFFREY GREEN:** Jeff Green here. I can say yes, we are familiar with this; this is a document that's been in circulation for a number of years.
27054. **MR. JEERAKATHIL:** Right, I mean just for the purposes of the record, it's a reference guide for the *Canadian Environmental Assessment Act* determining whether a project is likely to cause significant adverse environmental effects prepared by the Federal Environmental Assessment Review Office, November, 1994.
27055. Madam Chairperson, I wonder whether we can have this marked.
27056. **THE CHAIRPERSON:** Can we have an AQ number for that, Ms. Niro, please?
27057. **THE REGULATORY OFFICER:** Yes. That will be AQ41.

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**--- AID TO CROSS-EXAMINATION NO./AIDE AU CONTRE-
INTERROGATORE No. AQ41:**

Enoch, Ermineskin, Samson Cree Nations – A Reference Guide for the CEA Act – Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects prepared by the Federal Environmental Assessment Review Office

27058. **MR. JEERAKATHIL:** Thank you.
27059. Did you use the document -- I didn't notice that it was cited in your bibliographies, although I may have missed it, but did you generally use the document in the preparation of your environmental assessment?
27060. **MR. JEFFREY GREEN:** I'll answer by saying this is a guide, and yes we did. If you refer to section 3, in Volume 6a, in the scoping section you'll see that we do refer to the definitions that are contained in this document in relation to scope, magnitude, duration, frequency. We talked about certainty and likelihood; we talk about adverse versus non-adverse effects and so on.
27061. **MR. JEERAKATHIL:** Yes I did notice that.
27062. But I didn't see the document specifically cited. It was my only point. Not much turns on that. I just may have been wrong. I wasn't sure.
27063. **MR. JEFFREY GREEN:** Yeah. It may not be cited. I will have to confirm that.
27064. But it has typically been in use for, as I said, for many years. And I think we can amply demonstrate that the principles contained in this document are reflected in our cumulative -- in our environmental effects assessment rather.
27065. **MR. JEERAKATHIL:** Thank you.
27066. And if I might, I'd like to take you to what's called -- I mean the document begins on page 181, although it isn't obviously that long. But if I could just take you to page 190 of the document. That's the actual page number at the bottom.
27067. Oh, there we go.

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27068. There under number four -- sorry, under "Ecological Context" -- so the guide sets out a number of steps and -- which I'll get to in a moment but I just wanted you to confirm for me and this is under step number 2, under ecological context it says:

"The adverse environmental effects of projects may be significant if they occur in areas or regions that 1) have already been adversely affected by human activities and/or are ecologically fragile and have little resilience to imposed stresses." (As read)

27069. Do you see that reference?

27070. **MR. JEFFREY GREEN:** I do see that reference. And I'd just like to clarify; these are not steps these are definitions of terms.

27071. **MR. JEERAKATHIL:** Yes. I agree. This isn't a step; it is a definition of a term. But what I was saying earlier is that I would get to the steps in my next line of question.

27072. So if you could just confirm for me -- I think you mentioned on the record that you incorporated this document into your EA and that you agreed with the principles set out in the document, the reference guide.

27073. And can you just confirm for me that you also agree that ecological context is still -- and the points set out under it on that page, continue to be accepted methodology for EA.

27074. **MR. JEFFREY GREEN:** I'll repeat again; this is guide in support of the *Canadian Environmental Assessment Act*. The Act specifies what we must do. The guide provides us guidance as to what might be done.

27075. And we've been very clear in section 3 of our environmental assessment as to how we've applied the various attributes that go in to an environmental assessment.

27076. And specifically to this guide, we have had each discipline specifically define the various terms that are contained in this guide in terms of scope, magnitude, frequency, duration, specifically in relation to their valued

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- environmental component, and in some cases even specific to the effect that's being considered for that valued environmental component.
27077. **MR. JEERAKATHIL:** But would you agree with me that the adverse environmental effects of projects may be significant if they occur in areas or regions that 1) have adversely affected by human activities and/or are ecologically fragile and have little resilience to imposed stresses?
27078. Would you agree with that?
27079. **MR. JEFFREY GREEN:** I think that's a reasonable assumption. And that is really one of the purposes of environmental assessment is to look at those two circumstances.
27080. **MR. JEERAKATHIL:** Thank you. If I could now refer you to page 187 and 188 of the reference guide. Sorry, 187.
27081. There the document sets out a general framework for significance determinations and sets out three steps; one, deciding whether the environmental effects are adverse; two, deciding whether adverse environmental effects are significant; and three, deciding whether the significant adverse environmental effects are likely.
27082. Is that -- is that typically the methodology that you took -- that you adopted in your in your EA?
27083. **MR. JEFFREY GREEN:** Our methodology is set out very clearly in section 3, and it incorporates all three of these steps.
27084. But I want to remind again, this is a guideline. And we've indicated how we've applied these different factors in our assessment. And step one, the *Canadian Environmental Assessment Act* only focuses on adverse effects. And that's what that is getting at.
27085. Then step two is the determination of significance. And we do determine whether effects are significant or not significant, and we clearly state why we think that is the case in our environmental assessment. And then step three, it deals with the concept of likelihood, so how likely is it that the effect will occur.

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27086. And again, you'll find in our environmental assessment, both in the methodology and in each of the valued environmental components, we speak to the likelihood of effects occurring.
27087. **MR. JEERAKATHIL:** Thank you.
27088. I'd just like to explore a little bit about what some of those steps mean in context of your EA. But before I do, I would like to take you to -- sorry, 188 of the PDF -- sorry of that document, which is describing step two. And under the heading "Magnitude of the Adverse Environmental Effect", and this I think deals with the question of whether, as you've described to me, whether a particular effect may or may not be significant.
27089. And there it says:
- "Magnitude refers to the severity of the adverse environmental effects. Minor inconsequential effects may not be significant. On the other hand, if the effects are major or catastrophic the adverse environmental effects will be significant. When using this criterion it is important to consider the extent to which the project could trigger or contribute to any cumulative environmental effects."* (As read)
27090. Would you agree with that characterization of how to determine whether an effect is significant?
27091. **MR. JEFFREY GREEN:** A single attribute, you're singling out magnitude as one of many attributes that contribute to characterizing an environmental effect. The determination of significance is related to how an effect contributes to a measurable parameter and whether or not that parameter is above or below a threshold that we define.
27092. So these terms do not determine significance, they help explain why something may be significant.
27093. **MR. JEERAKATHIL:** So what you're saying is that there's a few different factors that you consider and one of them is the one I just talked about, the magnitude but there are others and those are described in your EA and also later on in this reference guide. Is that fair?

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27094. **MR. JEFFREY GREEN:** If you could just wait a moment, I want to direct us to B3-1, section 3.
27095. And we do talk in this volume about these terms. And basically, again, this is a very generic guide that is somewhat dated. It's still in use in guiding us as to the types of attributes we will look at in environmental assessment.
27096. But the way we interpret it, the information in this guide, is spelled out in section 3 of Volume B3-1.
27097. **MR. JEERAKATHIL:** And I did see that volume and I did look through it. And I just wasn't sure whether -- you know, on reading it whether it was consistent with this guide. And I think what you're telling me is that in your view it is?
27098. **MR. JEFFREY GREEN:** Absolutely. The methodology that we've used in this guide is one that our company has used in a number of environmental assessments across Canada and it's consistent with the *Canadian Environmental Assessment Act*.
27099. **MR. JEERAKATHIL:** Thank you.
27100. I'm wondering whether I could take you to your application, to Table 9-63, which is in Volume 6A, Exhibit B3-7, PDF page 100. Thank you.
27101. If I could just get you to sort of discuss this with me a little bit. If I understand this correctly this deals with an example of one of the species, the key indicator species that you evaluated, in particular grizzly bear, the characterization of the residual effects of change in habitat availability on grizzly bear.
27102. And would this table include -- does this table include after -- this is after mitigation; is that correct?
27103. **MR. JEFFREY GREEN:** Yes, that's correct. In the title it says, "Characterization of the residual effects", which is the effect after the application of mitigation.
27104. **MR. JEERAKATHIL:** Thank you. And I see here that you've considered the phases of construction operations and decommissioning; correct?

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27105. **MR. JEFFREY GREEN:** Correct. That's a requirement under the Act.
27106. **MR. JEERAKATHIL:** Thank you. Did you assess in a table like this or in some other way the impacts of a large spill on a key indicator species in general?
27107. **MR. JEFFREY GREEN:** We did, sir. And that was in a different volume entirely. And it was the subject of the last panel.
27108. **MR. JEERAKATHIL:** Right. And it -- and that -- I understand that there was a risk assessment done and those types of things.
27109. But did you try to incorporate the impact of a large spill into the framework that we were just discussing in terms of impact -- environmental impact? So if a spill occurred, you know, what would be the magnitude of the impact on, for example, grizzly bears, what would be the direction, the geographical extent, then the significance?
27110. **MR. JEFFREY GREEN:** I'd like to begin by first stating or describing the structure of the environmental assessment so that it is clear for everyone.
27111. Volume 6A is the effects of what we referred to as the routine activities associated with the project. It does not include large spills. It may include small spills of hydraulic fluids or those sorts of things as a relation to construction equipment, but anything considered to be an accident, a malfunction, was the focus for the pipeline anyways of Volume 7B, which was the topic of the last panel.
27112. The table you have before us does not include any consideration of accidents and malfunctions. It simply relates to the routine activities associated with the construction, operation and decommissioning of the pipeline and the associated infrastructure.
27113. **MR. JEERAKATHIL:** So the -- what you're telling me is that that analysis, with respect to the impact of a malfunction or spill within the framework of an effects analysis, wasn't done by Northern Gateway?

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27114. **MR. LANGEN:** Madam Chair, my friend, I think, is a bit confused. He's asking questions with respect to the effects of a spill, a hypothetical spill obviously. And that was the subject matter of the previous panel.
27115. He's now attempting to ask those questions to this panel and I think Mr. Green has explained the delineation as between the two panels and the evidence that they were speaking to.
27116. My friend had an opportunity to cross-examine the previous panel. And to the extent that his questions relate to the environmental effect of a hypothetical spill, they should have been directed to the previous panel.
27117. **MR. JEERAKATHIL:** No, that -- I don't think that's a fair characterization of my question. I mean, all I'm trying to get at is -- I understand that there was a previous panel and it dealt with spills. And I did ask that panel questions.
27118. My question is a simple one. It was, you know, whether that was incorporated into the environmental assessment methodology or not. And I'm just having the witness confirm that it wasn't incorporated into the environmental assessment methodology that we discussed about in the reference manual.
27119. So it has everything to do with the scope of the environmental assessment.
27120. **THE CHAIRPERSON:** I think that the -- it's a fair question and the witness should answer it.
27121. Thank you.
27122. **MR. JEFFREY GREEN:** In relation to accidents and malfunctions it's a much more complex process. So we -- you'll see that we do not use the same types of tables in Volume 7B or any of the other accidents and malfunction volumes. And the reasoning for that is that each spill is unique and it's very difficult to begin to define these specific attributes.
27123. But if you go into Volume 7B, or any of the other accidents and malfunction volumes, you'll see that in the description of general effects we do talk about -- first of all, it's clearly adverse. Geographic scope and magnitude is much more difficult to assess because it depends specifically on the situation

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- involved with the very -- the specific spill.
27124. We do talk about duration in relation to recovery of various species from a pipeline spill. And we submitted a document -- and I'll have to get you the exhibit number, but it was the review on the recovery of terrestrial and marine ecosystems from oil spills, which speaks very specifically. It was a very long document; it speaks specifically to duration.
27125. Frequency is obviously -- it's uncommon. A spill, just by definition, accidents and malfunctions are not common events and we would refer to it as a rare event.
27126. Reversibility, the recovery review speaks to that and the conditions which influence the reversibility or the recovery of an ecosystem from a spill and we do speak generally to significance. And again, significance here is not defined -- it's not treated in the same way as in this volume because it really does depend on the magnitude and geographic extent.
27127. Now, I'd like to go on and say that in the ecological and human health risk assessment where we did apply more specific spill scenarios with more specific geographic extents, you will see that we did assess significance and there are determinations of significant adverse effects.
27128. **MR. JEERAKATHIL:** Thank you, that's helpful.
27129. So I think you -- I think I heard in that that you would say that a large spill, for example, would have environmental effect that would be adverse; correct?
27130. **MR. JEFFREY GREEN:** We spoke to many examples in the last panel about adverse effects from an oil spill. And I would say volume is only one of the parameters that determines whether the effects from a spill are significant or not.
27131. **MR. JEERAKATHIL:** Thank you.
27132. And then -- and I want to talk about the EA methodology that we chatted about and the three steps. I'm wondering if you could help me with -- when we talk about whether significant adverse and environmental effects will be likely in the context of an environmental effects determination, what do we mean?

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Is it a -- is it 50 percent or more, or 20 percent, or do you have any -- can you assist me with how you approach that question?

27133. **MR. JEFFREY GREEN:** For routine operations that's actually a very easy question to answer. We assume the effects will occur. Because it's a routine activity and we're certain the effect will occur, then there's -- we're certain that the effect could occur and then we define what that effect might be.
27134. You'll see that in the environmental assessment that the certainty of our predictions and the certainty of our mitigation, so -- pardon me, I'd just like to go back and make sure we understand the difference between two terms.
27135. Likelihood is more closely related to probability; certainty relates to confidence. And so we do talk about the likelihood but in a routine -- rather effects that occur as a result of routine activities, we assume the likelihood is high that it will occur. Then we talk about certainty of the effect prediction and certainty of mitigation.
27136. **MR. JEERAKATHIL:** What about for matters that are not routine?
27137. **MR. JEFFREY GREEN:** Would you give me an example of what you're referring to, please.
27138. **MR. JEERAKATHIL:** Well, I suppose -- I mean, the questions in the three steps are -- unfortunately I'm not as good at answering questions as you are but -- in the three steps that we chatted about, the first one -- or the third one, deciding whether significant environmental effects are likely, I think you -- I thought what you told me was, if there's a routine matter that is going to occur that will cause significant adverse environmental effect, you would assume that they would occur.
27139. And maybe I misunderstood that. And you can clarify that if I did. And my question is if something was not routine, for example a spill or something like that, how would you assess the likelihood of that in the EA context or would you?
27140. **MR. JEFFREY GREEN:** I think that's a fair question and I'm happy to answer it, so back to routine activities. Yes, we do assume that if the activity occurs there is a very high likelihood that that effect will occur. So I believe we're in agreement there.

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27141. In relation to spills, and we spent a great deal of time on this in the last panel, the issue of -- or the aspect of probability becomes important. So it's the probability that different types of spill events will or will not occur. And there's a great deal of evidence on the record in relation to that.

27142. **MR. JEERAKATHIL:** And -- okay. Thank you for that.

27143. If I could refer you to Exhibit B-32 which is an information response to the Joint Review Panel by Northern Gateway, IR 3.16, PDF page 54.

27144. **THE CHAIRPERSON:** Mr. Jeerakathil, it's Sheila Leggett speaking.

27145. **MR. JEERAKATHIL:** Yes?

27146. **THE CHAIRPERSON:** I notice that we're coming up to our lunch break. Is this a good time to take a break and then start again with your question on this document after lunch?

27147. **MR. JEERAKATHIL:** Yes, it certainly is. Thank you.

27148. **THE CHAIRPERSON:** All right. So we'll break now and be back by one o'clock please.

27149. Thank you, everyone.

27150. **MR. JEERAKATHIL:** Thank you.

--- Upon recessing at 12:00 p.m./L'audience est suspendue a 12h00

--- Upon resuming at 1:00 p.m./L'audience est reprise a 13h00

27151. **THE CHAIRPERSON:** Good afternoon, everyone.

27152. Does anyone have any preliminary matters to raise before we continue?

27153. **MS. BROWN:** Good afternoon, Madam Chair and Panel Members.

27154. Rebecca Brown; counsel for the Joint Review Panel. I want to advise

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that we have had communications from the Kitimat Valley Naturalists and also the Friends of Morice-Bulkley. Both those groups have advised that they will not be questioning this panel of Northern Gateway.

27155. That's all, thank you.

27156. **THE CHAIRPERSON:** Thank you, Ms. Brown.

27157. Mr. Jeerakathil, are you on the line?

27158. **MR. JEERAKATHIL:** Yes, I am, Madam Chair.

27159. **THE CHAIRPERSON:** Oh, thank you.

27160. And just while we're doing time estimates, can you advise as to how long you expect to be with your questioning of this panel.

27161. **MR. JEERAKATHIL:** I would expect to be under an hour.

27162. **THE CHAIRPERSON:** Thank you very much. That just helps the other parties coming up behind you know when they might be called upon.

27163. **MR. JEERAKATHIL:** Yes.

27164. **THE CHAIRPERSON:** So with that, let's continue with your questions of this panel, Mr. Jeerakathil.

PAUL ANDERSON: Resumed

COLLEEN BRYDEN: Resumed

COLIN BUCHANAN: Resumed

RAY DOERING: Resumed

TOM FIDDLER: Resumed

JEFFREY GREEN: Resumed

DAVID REID: Resumed

GORD ROZON: Resumed

JOHN THOMPSON: Resumed

MICHAEL PRESTON: Resumed

**--- EXAMINATION BY/INTERROGATOIRE PAR MR. JEERAKATHIL:
(Continued/Suite)**

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27165. **MR. JEERAKATHIL:** Yes, if I could refer the panel to Exhibit B32, which is information response to the Joint Review Panel 3.16, PDF 54.

27166. There -- there's several questions, but what I'm interested in in particular is response (a), where Northern Gateway says it's committed to:

“... ‘no net gain in linear feature density’ in sensitive areas as the underlying objective [for] the Northern Gateway Access Management Plan.”

27167. And then you go on to discuss that a little bit more and I know that it's discussed in parts of the application. I have a few questions about that plan.

27168. The first is can you tell me what a sensitive area is under the access management plan? I know there is a table that sets out sensitive areas, Table 9-2, and I'm wondering whether that's it or if it's something else.

27169. **MR. JEFFREY GREEN:** Good afternoon, Mr. Jeerakathil. It's Jeff Green here.

27170. **MR. JEERAKATHIL:** Good afternoon.

27171. **MR. JEFFREY GREEN:** I'll start by stating that we're currently working with Alberta Environment and Sustainable Resource Development and the B.C. Ministry of Environment to better define these areas. And what we've currently defined are the five caribou ranges that we were speaking to yesterday.

27172. To save time I won't go through the names of the caribou ranges. We're also including what's referred to as the key grizzly bear ranges in British Columbia.

27173. **MR. JEERAKATHIL:** I see. So it is something that the ranges will be further defined through consultation with Alberta and British Columbia and they don't refer to specifically some type of sensitive area that might be settled under provincial legislation necessarily, is that right?

27174. **MR. JEFFREY GREEN:** That's correct. And Ms. Bryden just pointed out I used the word ranges, it should have been priority areas, so grizzly bear priority areas. They're not set out under legislation, they're areas that the

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- two wildlife agencies have identified as being important areas of concern for grizzly bear and/or caribou.
27175. **MR. JEERAKATHIL:** And do the caribou ranges coincide with the recovery strategy for -- is it boreal woodland caribou?
27176. **MR. JEFFREY GREEN:** There's the Little Smoky boreal caribou herd and then there's four mountain caribou herds.
27177. **MR. JEERAKATHIL:** Thank you. And so do you think that this list -- the current list that you described will be increased or decreased or are you able to comment at this point in time?
27178. **MR. JEFFREY GREEN:** I would say we're very certain it will not decrease. It could increase as we get further into the plan and identify the types of linear feature removal that we might want to undertake.
27179. **MR. JEERAKATHIL:** Thank you.
27180. And with respect to the principal of "no net gain in linear feature density", are you talking about just -- are you talking about the entire area that would be identified as a sensitive area?
27181. **MR. JEFFREY GREEN:** I believe we spoke to this yesterday, but very briefly ---
27182. **MR. JEERAKATHIL:** Okay, I apologize.
27183. **MR. JEFFREY GREEN:** --- the commitment by Northern Gateway is that the restoration of habitat is the -- when we're referring to that, that's the 25-metre extra temporary -- or extra temporary workspace that's adjacent to the permanent right-of-way which is also 25 metres wide.
27184. So the restoration, or rather the compensation plan, the objective is on a hectare-for-hectare basis within these ranges is to replace -- or rather compensate, find other areas where we can remove linear features of a similar area to what is being created by the project.
27185. **MR. JEERAKATHIL:** I see, okay. Thank you. So it isn't sort of a commitment to make sure there aren't any new linear developments or -- because

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- that might be a difficult thing to do, but to make -- to commit there isn't going to be any new linear developments in these areas by anybody, right? What you described to me is sort of a compensation mechanism for habitat?
27186. **MR. JEFFREY GREEN:** We cannot commit to anything beyond our own project, that would be the provincial agency's responsibilities. What we may do, however, is I like to refer to them as legacy linear features on the landscape, which may not be the responsibility of any party besides the governments at this stage due to changes in ownership or the length of time that they've been there. And those well -- may well be features not created by Northern Gateway, but they may well be features that we may want to undertake the compensation programs on those features.
27187. **MR. JEERAKATHIL:** And could the compensation program be extended to the creation of new habitats someplace else or is it specifically within those ranges ---
27188. **MR. JEFFREY GREEN:** The purpose of the linear ---
27189. **MR. JEERAKATHIL:** --- or area?
27190. **MR. JEFFREY GREEN:** --- linear feature removal plan is just exactly that, it's to remove linear features. So we're not creating new habitat in this case, we're removing linear features and I guess indirectly creating habitat by undertaking, first of all, restricting motor vehicle and public access along these rights-of-ways. And then through replanting and other measures we would be creating small areas of habitat along those rights-of-ways.
27191. **MR. JEERAKATHIL:** And would that be within the area you've defined or could they be someplace else? Could those initiatives be taken someplace else?
27192. **MR. JEFFREY GREEN:** Sorry, Mr. Jeerakathil, we're just having a short discussion here and I missed your question. Could you repeat it please?
27193. **MR. JEERAKATHIL:** My question was, the removal of linear features, will that take place within the area that you've identified as a sensitive area or would they take place there and potentially somewhere else to make up that habitat?

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27194. **MR. JEFFREY GREEN:** We did speak to this yesterday. The intent of working with the two provincial agencies is to identify the locations of linear features where -- I'm going to use the term -- we get the best bang for our buck. That we want to take out features that will restore the greatest amount of core security habitat for the two species we're speaking to, grizzly bear and caribou.
27195. **MR. PAUL ANDERSON:** But within the ranges of -- for the caribou herd for example.
27196. **MR. JEFFREY GREEN:** Yeah, correct.
27197. **MR. JEERAKATHIL:** Okay. That was my question, thank you.
27198. And can you tell me why you used the term no net gain in linear features as opposed to no net loss, which is a typical term that we hear ---
27199. **MR. PAUL ANDERSON:** Well, it's actually -- it's actually the -- sorry, this is Paul Anderson speaking.
27200. **MR. JEERAKATHIL:** Yes.
27201. **MR. PAUL ANDERSON:** We committed to not having increased access into those caribou ranges. So it's no net gain by removing other existing access to compensate for any increased access that we create as associated with our project.
27202. **MR. JEERAKATHIL:** I see, thank you.
27203. I had a short question back to ATK studies that I just wanted to follow-up on. In the ATK studies that have been completed do they contain an assessment of cumulative effects on the rights of those nations from other sources of industrial development?
27204. **DR. COLIN BUCHANAN:** It's Colin Buchanan here.
27205. **MR. JEERAKATHIL:** Yes.
27206. **DR. COLIN BUCHANAN:** Often the ATK studies that have been completed for the project often contain an assessment of cumulative effects on potential impacts.

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27207. **MR. JEERAKATHIL:** Thank you.

27208. If I could refer you to Exhibit B38-22, which is Northern Gateway response to Six Nations IR Number 1, page 5.

27209. There you were asked a question, in particular, to explain whether Enbridge agrees that impacts to wildlife and the environment in general due to the project can result in impacts to Aboriginal and Treaty rights within and outside of the proposed right-of-way or Aboriginal engagement corridor. And your response included the following statement:

"Northern Gateway has determined that the project is not likely to cause significant adverse effects on wildlife and/or on the environment. Northern Gateway is therefore confident that the Project will not have significant adverse effects on those who depend on the land and water for sustenance, including Aboriginal groups who may exercise their Aboriginal or Treaty rights in the use of land for traditional purposes."

27210. And my question arising out of that information response is, is it fair to say that in your analysis of impacts on Aboriginal and Treaty rights you're assuming that if there is no impact on a species harvested, there is no impact on the associated Aboriginal or Treaty harvesting rights?

27211. **THE CHAIRPERSON:** Mr. Jeerakathil, it's Sheila Leggett speaking.

27212. And just for your information ---

27213. **MR. JEERAKATHIL:** Yes.

27214. **THE CHAIRPERSON:** --- I don't think we have the right response to the IR on the screen, but I don't know if it's necessary to pull it up in order to have the answer to the question.

27215. **MR. JEERAKATHIL:** Okay. It's 1.2(d). I may not have said that. The response to 1.2(d). I think that's on page 10, actually.

27216. **MR. JEFFREY GREEN:** I believe the correct evidence number is B38-22.

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27217. **MR. JEERAKATHIL:** That's correct, yes.
27218. **THE CHAIRPERSON:** I believe it's on the screen now.
27219. **MR. JEFFREY GREEN:** Yeah.
27220. **MR. JEERAKATHIL:** Yes.
27221. **MR. JEFFREY GREEN:** Mr. Jeerakathil, could you repeat your question please?
27222. **MR. JEERAKATHIL:** Sure. I don't think I'm going to re-read that information response back into the record, but what I understood that information response to say was, because Northern Gateway is confident that the project isn't going to have a significant adverse effect on wildlife that is harvested, it won't have a significant adverse effect on Aboriginal and Treaty rights with respect to harvesting those animals.
27223. And my question is, so is it fair to say that you're assuming that if there's no impact on a species harvested there would be no impact on the Aboriginal or Treaty harvesting rights associated with that species?
27224. **MR. JEFFREY GREEN:** Mr. Jeerakathil, Jeff Green here.
27225. **MR. JEERAKATHIL:** Yes.
27226. **MR. JEFFREY GREEN:** The process -- so essentially what we can say -- and it's not just about wildlife, this is about all of the valued environmental components that we relate to in the pipeline environmental assessment. Is that given that we come to a conclusion that there are not significant effects and that we're applying a number of mitigation measures, we can first come to the conclusion that the abundance and distribution of these species will not be significantly affected.
27227. The second thing is that as a result of that we do not believe that the availability of these species for traditional use should be affected or the ability of traditional harvesters to reach that resource.
27228. So we can speak to the Aboriginal rights; it does not address the title

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aspect.

27229. **MR. JEERAKATHIL:** No, I wasn't asking about the title aspect, I was just asking is it basically then -- are you assuming that because there are no -- there's no impact on species harvested, and I take your point that that could be animals or plant ---

27230. **MR. JEFFREY GREEN:** And I'll just add a correction here, is we believe that there should not be a significant effect on the ability of Aboriginal people to use the land, and that's an aspect of rights. And it doesn't speak fully to rights.

27231. **MR. JEERAKATHIL:** Right. So my question is do you reach that conclusion on the basis that -- you've come to the conclusion in your EA that there won't be significant adverse effects on certain species of plants and animals harvested.

27232. And you assume from -- and then you assume from that that because that is the case or that's what you say is the case in your EA, that there will not be significant adverse impact on Treaty or Aboriginal harvesting rights of those same species. Is that fair?

27233. **MR. JEFFREY GREEN:** Mr. Jeerakathil, this panel can speak to the effects of the routine activities of the pipeline on the use of resources by Aboriginal people.

27234. The rights aspect is -- I understand will be the topic of the Aboriginal Panel that will be sitting in Prince Rupert and there will be people there able to speak to that.

27235. **MR. JEERAKATHIL:** Okay. I'm not asking you a question about the legal interpretation of Aboriginal rights. Maybe I'll just take you the last sentence that I read into the record which was:

“Northern Gateway is therefore confident that the Project will not have significant adverse effects on those who depend on the land and water for sustenance, including Aboriginal groups who may exercise their Aboriginal or Treaty rights in the use of land for traditional purposes.”

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27236. Now, what I'm asking you is how you came to that conclusion -- I'm suggesting you came to that conclusion by assuming that because there were no impacts -- significant adverse impacts on wildlife and/or plants you came to that conclusion and I'm asking you whether that's correct?
27237. And I think it is relevant to the EA obviously because you know, we're talking about CEAA which includes these issues. So is that fair?
27238. **MR. JEFFREY GREEN:** So our conclusion that there -- is that with the mitigation measures being proposed by Northern Gateway there will not be an adverse significant effect on the use of these resources by Aboriginal people.
27239. **MR. JEERAKATHIL:** And how do you come to that conclusion?
27240. **MR. JEFFREY GREEN:** I think I've documented that for you as we look at whether or not we think there will be significant changes in abundance and distribution or environmental quality and have concluded there will not be. And on that basis we then make the assumption that there should not be changes in the ability of people to harvest those resources.
27241. What we cannot speak to are spiritual values and cultural values associated with those resources.
27242. **MR. JEERAKATHIL:** Thank you.
27243. So my next question is then, does the corollary also apply, in that if a significant adverse environmental effect is found in relation to species of plants or wildlife that are harvested, that there will be a significant adverse effect on traditional harvesting rights?
27244. **MR. JEFFREY GREEN:** We can only speak to the use of the resource. So I think it would be fair to say the corollary which is that if there was a significant effect on a harvestable species that there could be an effect on use and then we would have to look at that more closely.
27245. **MR. JEERAKATHIL:** Thank you.
27246. Can you confirm that in the environmental assessment you did not do a separate residual effects analysis for Aboriginal -- for impacts to Aboriginal and Treaty harvesting rights?

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27247. **MR. JEFFREY GREEN:** We didn't do it specifically for Aboriginal use. But we did do it for all of the valued environmental components which support the argument that's being put forward.
27248. **MR. JEERAKATHIL:** Thank you.
27249. Can you advise whether there may be access related issues -- public access related issues with respect to the right-of-way -- the pipeline right-of-way and other working areas with respect to Crown land during construction and during operation? You could maybe speak to both of those. Would you know?
27250. **MR. LANGEN:** Mr. Jeerakathil, it's Mr. Langen.
27251. Madam Chair, if Mr. Jeerakathil could be a bit more specific in his question I think that might be helpful.
27252. **MR. JEERAKATHIL:** Okay. I'll do my best.
27253. Will the pipeline right-of-way be fenced or will it -- will access to the pipeline right-of-way be restricted in anyway?
27254. **MR. TOM FIDDLER:** Mr. Jeerakathil, it's Tom Fiddler here.
27255. Could you repeat your question, please?
27256. **MR. JEERAKATHIL:** I was just wondering whether access to the right-of-way for the pipeline will be restricted in any way, by fencing or something along those lines? And of course I'm referring specifically to Crown land if you're aware of those types of restrictions that might exist.
27257. **MR. TOM FIDDLER:** Not specifically with fencing. Having said that, our intention of course is to prohibit access to the right-of-way in the interests of public safety and stakeholder safety during construction activities and there may in fact, as we move forward into the operational phases and final cleanup, we may in fact build impediments such as rollback and the like to inhibit public access.
27258. Again, it would part of our linear disturbance compensation program. And that would be designed and built into our environmental alignment sheets as

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- a proactive approach to prescribing how we're mitigating impacts.
27259. **MR. JEERAKATHIL:** Thank you.
27260. Would you agree with me ---
27261. **MR. JEFFREY GREEN:** Mr. Jeerakathil, sorry to interrupt Mr. Jeerakathil. It's Jeff Green.
27262. I just wanted to add to Mr. Fiddler's remarks several other important initiatives we'll be -- have been made. They're commitments by Northern Gateway, is that as part of the centerline survey process, teams of -- a wildlife biologist, a botanist, an archaeologist and a First Nations individual, as well as at stream crossings, a fisheries person, will conduct the centerline surveys.
27263. And the intent of having an Aboriginal person participate, and they would be individuals from First Nations whose traditional territory overlaps that particular segment of the pipeline right-of-way, the purpose of their participation is to identify important cultural and spiritual sites. As well as areas like trails and important harvesting sites that can be notated on the alignment sheets that Mr. Fiddler was speaking to.
27264. The other area where Aboriginal people will be engaged -- and it does related to the removal of linear access -- clearly this a difficult process in society because some people may want access and some may not want it -- is the intent is once draft plans have been developed with the two wildlife agencies there is a commitment by Northern Gateway to engage Aboriginal people and public stakeholders in finalizing those plans.
27265. **MR. JEERAKATHIL:** And those plans will determine whether there may or may not be access to certain areas. Is that correct -- of the pipeline route?
27266. **MR. JEFFREY GREEN:** That's correct. The pipeline route we also have to take into account the need to protect certain environmental values and we may have to make decisions that certain areas of the new pipeline right-of-way may need to be obstructed for public access because of important environmental values.
27267. **MR. JEERAKATHIL:** Thank you.

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27268. Would you agree with me that impacts to Aboriginal and Treaty rights, with respect to harvesting, will include not only impacts to the species harvested but also those areas to which access is prohibited?

--- (A short pause/Courte pause)

27269. **MR. JEFFREY GREEN:** Mr. Jeerakathil, the intent of both the access management plan and linear feature plan is to work with Aboriginal communities to identify which access points would be kept open, particularly in relation to harvesting and other uses.

27270. And I think as -- in general, we're just having a discussion here, feedback from a number of ATK studies I think, tend to indicate the opposite which is that in some areas there's too much access and there's a desire by some Aboriginal communities to see a reduction in access in order to restore habitat in certain areas along the pipeline right-of-way.

27271. **MR. JEERAKATHIL:** And that would be prohibiting access to everybody?

27272. **MR. JEFFREY GREEN:** Yes, the intent of the linear feature plan is to restore core security habitat for species like grizzly bear and caribou, and that means that all access, both for humans and in the case of the linear feature removal plan we also hope for predators, that access would be reduced. And so it is a cooperative societal effort to identify where those areas would be located.

27273. **MR. JEERAKATHIL:** Thank you.

27274. **MR. PAUL ANDERSON:** And because it's Crown land, we can't prohibit people from using the areas, but our intent would be restrict access, you know, using a variety of methods to reclaim roads and seismic lines and et cetera from the unlimited access they enjoy today.

27275. **MR. JEERAKATHIL:** But that -- those disturbances that say, in habitat that exist now would be part of the base case, and what I'm asking is -- so let's assume that those areas exist in the way that they exist now.

27276. My question is wouldn't you agree with me that on a -- for the project case, that impacts to Aboriginal and Treaty rights will include not just the impacts that the project will have on the species harvested but also impacts from areas

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where harvesting did take place but which is now prohibited?

27277. **MR. PAUL ANDERSON:** Well, again, I don't think you can prohibit access. You can make it more difficult for people to get in -- into areas but access -- you know, individuals could still get to areas and harvest species. They just wouldn't have the same ability to drive there or they might have certainly less access than they did previously.

27278. **MR. JEERAKATHIL:** That's fine, thank you.

27279. I would like to refer you to Exhibit B38-22, Response 1.2G. And then the question is on page 5, and the answer is on page 10.

27280. And so the question was -- let me see here. Well, I'm not sure if I've got you the right response but -- you asked a question in that information request to:

“...explain how feedback received from each of the Nations [that gave you that information request] regarding the mitigation measures proposed by Enbridge to mitigate impacts on each Nation's Aboriginal and Treaty rights has been incorporated into the project design and planning.”

27281. And your response said:

“Feedback from ATK studies will be incorporated into Project planning as and when it is received. For mitigation measures identified by [...] Enoch Cree Nation, see Northern Gateway's response to JRP IR 5.9.”

27282. And then it goes on.

27283. And I'm wondering whether you can now explain how feedback from First Nations regarding mitigation measures proposed by Enbridge to mitigate impacts on the nation's Aboriginal and Treaty rights has been incorporated into the project design and planning?

27284. **MR. PAUL ANDERSON:** So information -- sorry, this is Paul Anderson speaking again.

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27285. Information regarding traditional uses of the land has been incorporated into project planning in many ways. We've used that information for developing the route and we've made many alterations to the route to accommodate information that has come in through the ATK process and through consultation with Aboriginal and non-Aboriginal groups.
27286. We've also looked at a lot of the mitigation that appears in Volume 7A, which is our environmental management -- our management -- environmental management -- environmental protection and management plan, sorry. And many of those mitigation measures applied to areas where we've been -- where Aboriginal traditional uses have been identified.
27287. We have received quite a bit of information, as Mr. Buchanan has explained, from Aboriginal communities regarding ATK but that process is ongoing. We've received quite a bit of information through oral evidence, and we've received -- and we will continue to receive additional information through this process. And as Mr. Buchanan has mentioned, we've continued to try to get additional studies with respect to Aboriginal traditional use that would be incorporated.
27288. As we get that information, as this IR suggests, we will continue to make modifications to the program where it's practical and where we can accommodate changes.
27289. **MR. JEERAKATHIL:** Are you able to give me a specific example where that's been done?
27290. **MR. RAY DOERING:** Mr. Jeerakathil, it's Ray Doering.
27291. I'll start with a couple of examples and I believe Mr. Anderson may want to add a few. We have documented a fairly large number of ---
27292. **THE CHAIRPERSON:** Mr. Jeerakathil, are you still with us?
27293. **MR. JEERAKATHIL:** Yes.
27294. **THE CHAIRPERSON:** Terrific. Mr. Vulcano, have you joined us?
27295. **MR. VULCANO:** Yes.

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27296. **THE CHAIRPERSON:** Oh, that's great. Okay, Mr. Vulcano. We're still having the questions from Mr. Jeerakathil so we're not quite ready for your questions at this point.
27297. **MR. VULCANO:** Thank you.
27298. **THE CHAIRPERSON:** Thank you.
27299. **MR. RAY DOERING:** Okay. Again, it's Ray Doering here, I'll just continue.
27300. Just to describe a few of the route amendments, I guess I'll start with that, that have been considered as a result of feedback from ongoing engagement with Aboriginal communities. Maybe I'll just focus on some of the Alberta communities we've been working with.
27301. We have been looking at some pipeline routing and pump station amendments for Alexis Nakota Sioux Nation in the Whitecourt area, to accommodate their interests, and so we've been able to accommodate that within our route amendments and some upcoming route amendments that we'll be incorporating.
27302. Similarly, for Alexander First Nation on some of -- on two of their different reserves, we've been able to accommodate some routing concerns to address local interests. I think those are a couple very specific to some of the Alberta Aboriginal communities with respect to routing,
27303. And I believe Mr. Anderson has a few additional items he would like to describe in terms of amendments to the project.
27304. **MR. PAUL ANDERSON:** Thank you.
27305. In Northern Gateway's response to JRP IR 5.9, which was exhibit -- or is Exhibit B40-4, there lists a number of mitigation measures that are proposed. And there was a follow-up update in JRP -- or Northern Gateway's response to JRP IR 10.9, and that was in June of this year, and that's Exhibit B74-5.
27306. The attachment to that latest IR includes a very large table that summarizes the concerns and issues raised by Aboriginal groups mitigation that was recommended by those groups, if any, and then whether our standard

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mitigation or other mitigation could be incorporated into the project plan to accommodate or resolve or address the issues raised.

27307. And I think there's quite a large number of examples, if I could direct you to that exhibit.

27308. **MR. JEERAKATHIL:** Thank you, that's helpful.

27309. Just the last few questions here; I was wondering, did Enbridge have a policy or a guideline, internally, with respect to determining which First Nations will receive ATK funding to complete the ATK studies?

27310. **DR. COLIN BUCHANAN:** It's Colin Buchanan here again.

27311. I can tell you that ATK studies were completed with a large number of groups. The funding was largely dependant on a number issues, including proximity of the right-of-way, and potential impacts. But you can get further clarification on this from the Aboriginal Consultation Panel.

27312. **MR. JEERAKATHIL:** Thank you.

27313. Madame Chairperson, those are my questions.

27314. **THE CHAIRPERSON:** Thank you very much, Mr. Jeerakathil.

27315. So we'll move now to Mr. Vulcano.

27316. Mr. Vulcano, are you still on the line?

27317. **MR. VULCANO:** I am, Madam Chair. Thank you.

27318. **THE CHAIRPERSON:** Thanks, Mr. Vulcano. It's Sheila Leggett speaking.

27319. Please proceed with your questions of this panel.

--- EXAMINATION BY/INTERROGATOIRE PAR MR. VULCANO:

27320. **MR. VULCANO:** Okay. I'd like to start with the socio-economic conditions. It's Volume 6c, Binder 8 of 10, page 4-1.

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27321. **THE CHAIRPERSON:** Mr. Vulcano, are you joining us just over the telephone or are you also on the WebEx?
27322. **MR. VULCANO:** Only the telephone.
27323. **THE CHAIRPERSON:** Thank you. I'll give you a little bit of blow-by-blow as we go then. Ms. Niro is just pulling up the page that you've requested.
27324. **MR. VULCANO:** Thank you.
27325. **THE CHAIRPERSON:** Mr. Vulcano, do you need the specific page up in order to ask your question?
27326. **MR. VULCANO:** No. No, I don't, it's if you wanted to see what I was quoting from. It's the last paragraph on that page.
27327. **THE CHAIRPERSON:** And can you give us the exhibit again, the exhibit reference?
27328. **MR. VULCANO:** It's B8-2, I believe is what it's called in the exhibit reference, and it's Volume 6c, Binder 8 of 10, section 4.
27329. **THE CHAIRPERSON:** And do you have a page number, Mr. Vulcano?
27330. **MR. VULCANO:** It's page 4-1.
27331. **THE CHAIRPERSON:** We're just having trouble finding a page 4-1 on the record.
27332. Mr. Vulcano, if it's appropriate for you why don't you proceed with your question, and then if the witness panel needs to pull up the specific reference we can continue to look for it.
27333. **MR. VULCANO:** Okay. The last paragraph on that page starts with:

"Human health concerns during construction include possible increased demands on community health facilities by project workers, interactions between construction workers, and local

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residents." (As read)

27334. My question is, it's not a matter of possible increased demands, there will be increased demands which might be mitigated. What records does the Proponent have from past construction that track interaction between workers and residents?

27335. **THE CHAIRPERSON:** The witness panel is just caucusing, just so you know.

--- (A short pause/Courte pause)

27336. **MR. TOM FIDDLER:** Mr. Vulcano, it's Tom Fiddler here.

27337. **MR. VULCANO:** Hi Tom.

27338. **MR. TOM FIDDLER:** This is a subject of ongoing discussion as we develop our detailed construction execution plans, and we move forward into that level of planning with the communities that are going to be affected by the -- I'll call it -- transient workforce on the pipeline, will typically move through an area in less than nine months.

27339. Our methods at this time are to track and report Aboriginal employment and capacity opportunities, as well as medical aids. Beyond that, at this stage in our projects on the Prairies at this stage, we haven't been tracking any broader impacts on the communities that I'm aware of offhand, but that's subject to check at this time.

27340. **MR. VULCANO:** So you don't maybe have anything from past to really go on then?

27341. **MR. TOM FIDDLER:** Well, other than the medical aid -- and maybe to help you out there, we do prescribe qualified emergency medical technicians on the pipeline spreads, so they are fully competent and prepared to deal with most of the types of injuries that are incurred. And then to the extent someone needs hospital attention, basically, that's where we have to evacuate them to.

27342. **MR. VULCANO:** The gist of my questioning would not so much on emergency, but just the extra influx of the transient population. And that's going to create demands, and then that interaction with the residents is going to create

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some tensions.

27343. So I was wondering if you had any record of that to go back, because you're going to move forward, you're going to use what you've done in the past to build on. So I was wondering, what do you have from the past that you're looking at that says, well, here, we won't make this mistake again or we could do this better?

27344. **MR. TOM FIDDLER:** We have employed camp operations, but not as frequently as we're planning going forward on this project. So that's certainly a focus of some effort that's coming.

27345. **MR. PAUL ANDERSON:** Mr. Vulcano, this is Paul Anderson.

27346. I can tell you that many of the measures that are included in the environmental protection and management plan, which is Volume 7a of our application, it does include measures to minimize impacts on residents in the area of construction; things like dust control, rules around -- or measures around camps, et cetera.

27347. So there are measures that are outlined in that volume as well, and that is based on what measures have been shown to be effective in the past to minimize impact on residents.

27348. **MR. VULCANO:** Okay.

27349. **MR. PAUL ANDERSON:** And I'm assuming you don't mean landowners, or on the landowners in which we traverse. Is that correct?

27350. **MR. VULCANO:** That's correct.

27351. **MR. TOM FIDDLER:** Mr. Vulcano, maybe if I could just build on that because it would be negligent not to.

27352. It's important to highlight that, certainly, traffic transportation plans are common practice, inclusive of not only the workforce but the movement of heavy equipment and materials. And in that regard, it's very much in consultation with the local municipalities and the Department of Highways in terms of preferred routes and methodologies in terms of routing heavy industrial traffic as well as the workforce.

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27353. **MR. VULCANO:** Okay. I'll move on to page 4-8 of that volume.

This is:

"...2,000 to 3,000 will be directly employed during the peak periods..."

27354. These employees would be considered shadow population to local municipalities. And I'm going to be making reference to the shadow population paper.

27355. The question is, what increase will there be due to these additional residents in each municipality along the way? I'm looking for a percentage.

27356. And the Aid to Cross on the shadow population in Northern Alberta is page 3 of 52, and it says:

"The shadow population would be considered for authorization if 10 percent or more of the permanent population." (As read)

27357. **THE CHAIRPERSON:** Mr. Vulcano, I think we're going to need you to slow down a little bit so that we can keep up with you. We're still looking to get the page that you referenced on the screen.

27358. It's not a map that you're referencing, is it, sir?

27359. **MR. VULCANO:** No, it's page 4-8. That's the way they're numbered on this May 2010 document.

27360. **MR. JEFFREY GREEN:** Mr. Vulcano, it's Jeff Green here. I believe the evidence number you gave us was the update to the socio-economic assessment. And I think what we want to do is go back to its -- if you would just give us a minute here, we can find the right -- it's B3-16, which is the original socio-economic assessment in Volume 6C. And I think then we'll all be on the same page number.

27361. **MR. VULCANO:** Okay.

27362. **THE CHAIRPERSON:** Thank you, Mr. Green.

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27363. So do we have the right -- of course, Mr. Vulcano, you can't see this so you don't know if we've got the right reference. What section were you on in that volume?
27364. **MR. VULCANO:** Section 4. I had sent all my questions October 26th with the references, and I sent them again last night.
27365. It's in between Table 4.5 and Figure 4.2. There's a ---
27366. **THE CHAIRPERSON:** Thank you, Mr. Vulcano. Thank you for that description. We're right in the same spot as you are now on the screen.
27367. And so I would ask you to -- if you could go back and repeat your question. And it sounded like you had a few questions there, so maybe you could just break them up and ask them one question at a time.
27368. **MR. VULCANO:** Well, there's just one question. This is, what increase will there be due to these additional residents in each municipality along the way? I'm looking for a percent figure.
27369. **MR. JOHN THOMPSON:** It's John Thompson speaking.
27370. We didn't calculate the extent to which any of those municipal populations would actually increase, and there were a number of reasons for doing that.
27371. First of all, let's look at the figure you're talking about. That happens to be the aggregate for the entire project in both Alberta and British Columbia, so I would suggest that it's probably not the best figure or table to be using.
27372. What you actually need to be looking at is the information for the individual spreads, and those will be found in Exhibit 8-2.
27373. **MR. VULCANO:** Yes. And I was just using that as a reference to come to the -- I'm trying to get a percentage figure and that's why I was referencing the Aid to Cross of page 3 of 52 on the shadow populations.
27374. **MR. JOHN THOMPSON:** Yes, I've had a chance to go through the Aid to Cross and I think I know where you're going.

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27375. So maybe if we look at one of the specific regions that we've dealt with in Exhibit 8-2, that might be a tad more helpful. Is there a specific region you'd like to talk about?
27376. **MR. VULCANO:** No, I want to know on each one. I guess the concern comes if we can use this document from the Northern Alberta Development Council as a guideline that 10 percent is considered sort of the threshold.
27377. So what communities, if any, what areas, what spreads will break that 10 percent threshold that it should be cause for concern?
27378. **MR. JOHN THOMPSON:** Okay. Well, first of all, I think it's important to understand what your Aid to Cross is actually looking at.
27379. What it was reporting was shadow populations that are at issue in Alberta where you have construction oil field operations that are resulting in relatively large numbers of people being moved into construction camps, hotels and motels, campgrounds and other things for relatively extended periods in order to do what they're going to do. The best example, of course, being Fort McMurray where you've got construction camps that are operating continuously.
27380. We don't believe that that's really good -- a good analogy for what we're talking about here. You've got to remember that most of these construction camps are only going to have bodies in them for about six months. So they set up the camp, they operate for six months, they deconstruct the camp and they move on to the next location.
27381. So in proximity to any particular community, you're really only actually going to see bodies there for six months. That's a very, very different picture than the sorts of shadow populations that are being talked about in your Aids to Cross.
27382. Now, that being said, there could still be some potential for the workers and the people in those camps to have some requirements for use of local community services. The benefits of using camps is that there will be recreation facilities provided, there will be emergency health facilities provided. There will be arrangements for -- or the whole relationship between how camps are going to act with municipal providers and whatnot will be negotiated and identified as part

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of your construction execution plans.

27383. But you know, the experience has been -- and I'll let Mr. Fiddler talk more about this -- is that there really hasn't been much interaction in case of law enforcement or health where these sorts of camp arrangements have been used in the past.

27384. **MR. VULCANO:** Are you talking about your camp arrangements or other camp arrangements?

27385. **MR. JOHN THOMPSON:** Pipelines in general. Mr. Fiddler can talk about what's happened in the past.

27386. And again, the key in all of this using what are called the project execution plans or construction execution plans where, prior to the contractors even being asked to bid, they'll put together a sort of a set of arrangements that the contractors will have to live by in terms of what services they're expected to have internal to the camps and where they're going to have demands on local facilities.

27387. **MR. VULCANO:** And I have to take exception to your characterizing six months as being a short time. The shadow population, I think, becomes significant when it's at least one month, so you've got them being there six months.

27388. I think that's going to be a significant impact and that's the issue being addressed in most of my questions. And so ---

27389. **THE CHAIRPERSON:** Mr. Vulcano, it's Sheila Leggett here.

27390. This is -- as we've talked about before, you'll have your opportunity to provide your thoughts and views during the final argument stage. This is the opportunity for you to ask questions of the witness panel.

27391. So can you frame your questions in a way that gives you the information that you'll need for final argument?

27392. **MR. VULCANO:** Well, I'm trying to do that, but I can't -- I can't accept them saying that six months is a short time. And so I'm questioning that as evidence, their characterization of a short time. And that's what -- I'm using this

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opportunity, the panel, to bring to the attention that there's shortcomings in how they perceive what is a short period and what its impact is.

27393. **THE CHAIRPERSON:** And you'll have the opportunity to present your views, like I said, in final argument, and so this your opportunity to ask the questions to have additional evidence put on the record to help all of us understand the evidence that's in front of us.

27394. **MR. VULCANO:** Well, I don't have my question answered on -- they side-stepped it on what the percentages are. I'm using the 10 percent. I specifically asked which of the spreads will be exceeding the 10 percent. Could that be done as an undertaking?

27395. **MR. GORD ROZON:** Mr. Vulcano, it's Gord Rozon here.

27396. Perhaps I can make a couple of comments on the threshold you're talking about, and how it was used.

27397. The 10 percent threshold in the Alberta situation is one which the various northern municipalities within in the Northern Alberta Development Council requested as a threshold for qualifying for additional funding from the provincial government to meet their infrastructure needs and demands. And within that definition they determined that to identify what a 10 percent increase would be was a duration of more than six months in camp.

27398. And as Mr. Thompson said the general situation is not directly analogous but the threshold itself is not quite the way that I think that you may have perceived it.

27399. Secondly, I think it's important to note that these -- this process that they went through to study these thresholds, to look at these issues, was one that was part of an Alberta initiative to review royalty distribution -- financial distribution within the province.

27400. And in that same document, on page Adobe 32, they do say that the:

“As a closing comment it is necessary again to acknowledge that Northern Alberta needs and benefits from the flux of transient workers in the current economic boom. The intent is to demonstrate the need for the acknowledgement of impact on

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services and resources to higher level decision-makers to ensure that these resources are supported to the level of usage.” (As read)

27401. And what we were speaking to is given that the camps that we're talking about for the pipeline are quite self-sufficient in comparison to some of the shadow population circumstances in Northern Alberta, that both the duration of those effects and the host nature of the demands will be different, substantially different.

27402. And that's why we don't think this is good model to try to understand how the effects of the pipeline will affect local municipalities in Alberta or B.C.

27403. **MR. VULCANO:** Well, I don't want to be getting argumentative lest I be crossed out. But on page 12 of 52 of that document it says:

“A person must reside in the community for not less than 30 days, not more than six months.” (As read)

27404. So that says to me the shadow population, the significance of the transient residents is between one and six months.

27405. Now the point that I'm getting to is that in Alberta it's acknowledged as an issue. British Columbia hasn't come up with a way to address this. So the concern is more for the British Columbia communities. It may or may not be covered for Alberta.

27406. But given that Alberta has gone through this and realizes the transient populations do have an impact and they provided that guideline, the 10 percent, what about doing that for British Columbia.

27407. And what you're saying is you don't feel it applies. I'm saying it does. And so I'm asking for an undertaking of what those populations are. How much it's going to increase them?

27408. **MR. JOHN THOMPSON:** It's John Thompson again.

27409. I guess the key point again, Mr. Vulcano, is that when you read the Alberta document what you're facing in a lot of these communities is that there isn't just one project or Proponent in place at any point in time.

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27410. What in fact you have is a number of contractors, some large, some small. They're setting up temporary work camps; they're putting people in hotels; they're taking over provincial and other campsites. There's no plan. If you read the document it says in fact one of the biggest problems is that there's no way of keeping track of things and it's causing great problems.

27411. I would argue again that this is not a good analogy for what we're talking about here because perhaps with the exception of Kitimat, you're really talking about a single Proponent having a distinct camp with very restricted operating conditions, functioning for six months and then it's gone.

27412. In Kitimat you've got a different story because there are other activities going on -- certainly the Rio Tinto workforce and there could be any number of other things going. And when you find -- go through and look at other documents for example such as B47-10 which is the JRP IR Number 88; you can also see it in B40-2 which is the JRP IR 5.4.

27413. We realize that Kitimat is going to be an issue because things are changing so quickly. And what we've set out is a process by which Northern Gateway would work with the community and the other contractors to make sure that when you bring a fair number of bodies into a community for a fairly extended period of time that there will be plans, there will be a coordination, there will be cooperation, and these things will be dealt with.

27414. I would note that I have done the calculations for Kitimat. And it's interesting because with the exception of the six months of pipeline, the work force, even at peak, is actually below that 10 percent threshold that's talked about in Alberta.

27415. **MR. VULCANO:** Okay. Thank you.

27416. You've made two of my points that there's at least one community you recognize at risk but you don't -- you're just taking a guess in the dark whether or not the other communities will pass that threshold.

27417. And the other is that it's a cumulative effect, it's not just your project. And I believe that's one of requirements of making this submission is that you take into account the accumulative effects.

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27418. So can you give the calculation for all the communities that are going to be affected along the way?
27419. **MR. LANGEN:** Madam Chair -- sorry Mr. Vulcano, it's Dennis Langen; counsel for Northern Gateway.
27420. I believe the witnesses have indicated that -- I think earlier in the line of cross-examination, Mr. Fiddler might have indicated that the details haven't been established. He can correct me if I'm wrong, but the details haven't been established with respect to exactly where the camps will be. So I think if that's the case then it may be difficult to in fact just do the math in any event.
27421. And then the second issue is that the witnesses have made it very clear that this aid to questioning, the purpose that it was prepared for and the guideline that's presented in it is not necessarily -- well, is not properly used in respect to -- or analogous to the Gateway Project.
27422. And in particular, they cited the fact that the 10 percent number was placed in there in order to set a level or a threshold for provincial government funding which may or may not have different things built into it, and may or may not be relevant to Northern Gateway.
27423. So in that context I don't know whether the undertaking would be of any value, recognizing my first comment with respect to whether or not it could in fact be under -- or the math could in fact be done.
27424. **MR. VULCANO:** Well, I'd certainly accept the 10 percent may be an inadequate threshold number, maybe it's 5 percent that -- not having that information makes it difficult to present anything in a final argument.
27425. Let me move onto my next question. It's on page 4-28, header section 4.1.7, Mitigation and Effects Management.
27426. Madam Chair, I'll wait till you let me know that's up on the screen or found.
27427. **THE CHAIRPERSON:** Thanks, Mr. Vulcano. I believe we're just getting there now.
27428. Mr. Vulcano, could you repeat what area you were looking for in that

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document?

27429. **MR. VULCANO:** It's page 4-28, it's section headed as 4.1.7.
27430. **THE CHAIRPERSON:** We've got it. Yeah. Thank you very much for continuing to talk about it so we could find it. Thank you, Mr. Vulcano.
27431. So 4.1.7 Mitigation and Effects Management is on the screen now.
27432. **MR. VULCANO:** Okay. Then it -- the section I'm referring -- going to refer to says: "Extent to which economies will benefit will depend on."; then there is four points, the employment and procurement, the capacity of suppliers, number of skilled -- of available workers and economic conditions.
27433. So my question is: So local benefits are dependant on the policies and if local people are not available for employment, do the policies allow employing outside the region?
27434. That's the first question.
27435. **MR. JOHN THOMPSON:** The simple answer is 'yes'.
27436. And, again, where the better evidence is related to employment effects is in Exhibit B8-2 where we, in fact, look at each of the six regions along the pipeline spread, and we specifically look at the labour force requirements for each spread, and we determine the extent to which local people would be hired for on-site employment as well as may benefit from regional purchases of goods and services.
27437. And what you'll see is that, to a large degree, workers are going to have to be brought in to the region to do it -- to construct the project. And, again, there are a couple of reasons for this. The most important of which is that the sorts of skill sets that are required for construction of large diameter pipelines are simply not resident on the -- sort of the -- west of the Rocky Mountains. There is no oil and gas industry here, there hasn't been. And so you don't have the workforce here that can do those sorts of things.
27438. So for, that reason, you're going to wind up having a fair number of outside workers brought in.

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27439. The other thing too is, don't forget that this is going to be constructed by a number of contractors who will have their -- you know, the people that they know have the skills that they will bring along with them.

27440. **MR. VULCANO:** But where outside the region? Where does that extend to?

--- (A short pause/Courte pause)

27441. **MR. VULCANO:** Hello? Am I still connected?

27442. **MR. TOM FIDDLER:** Sorry, Mr. Vulcano.

27443. **THE CHAIRPERSON:** Yes, Mr. Vulcano. Yes, it's Sheila. The witnesses were just conferring.

27444. **MR. TOM FIDDLER:** So the workforce will, to the extent possible, come as a team that's progressively doing their three or four spreads, as we've talked about in the last discussion, Mr. Vulcano.

27445. Now, having said that, as they get into geographic regions, we do have commitments to community-based employment opportunities and I -- there's another Panel that'll speak to some of the training and skills development as well as some of the consultation in those regards.

27446. Having said that, the large bore pipeline contractors typically have agreements with their labour associations for what we refer to as a certain percentage of name hires. And those are individuals that are familiar and have the skill sets such that the work can be conducted safely and efficiently from a contractor's perspective including the quality and the compliance and so on that's incumbent on them.

27447. So they'll typically have somewhere in the order of 35 to 50 percent of the people will be people that they're very familiar with that come with the skills. They'll be the skilled operators, the skilled welders, the skilled teamsters and the like.

27448. The others, they will -- the other proportions of the workforce will substantially be local small sub-contractors to the extent they can do that and then, also, unskilled labour. And subject to some pre-access requirements and some

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- basic safety orientations, there will be a level of employment. We've seen and we've tracked it, levels of employment in the 20 to 25 percent on pipeline spreads from Alberta going east across the Prairies.
27449. I'm hoping that that answers your question in that regard.
27450. **MR. VULCANO:** Well, east across the Prairies, doesn't that diminish your claim of local benefits?
27451. Because you're depend -- you're not really going to be employing that many local people.
27452. **MR. TOM FIDDLER:** No, I was using that as an analogy that we should -- and we are committed to achieving a minimum 15 percent Aboriginal employment. That may or may not be immediately local.
27453. And, similarly, we would expect that we will see local employment, including northern residents in general, being over 20 percent on the Project.
27454. **MR. VULCANO:** And the other 80 percent?
27455. **MR. TOM FIDDLER:** They'll come ---
27456. **MR. VULCANO:** From across Canada, across the world?
27457. **MR. TOM FIDDLER:** They'll come from across the country but, generally, they're provincially based.
27458. Having said that, again the nature of most of the large bore pipeline contractors is they are Alberta-based in general. A few of them have Ontario operations.
27459. **MR. JOHN THOMPSON:** Mr. Vulcano, it's John Thompson speaking.
27460. If you've got access to the Application, I would suggest you go to Adobe 113 in Volume 8-2.
27461. **MR. VULCANO:** I might be able to do that later. I don't have -- all I have in front of me is two binders. I don't have computer access.

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27462. **MR. JOHN THOMPSON:** Okay, well, this is a Table that appears in the Regional Socio-Economic Effects Section of Volume 6C.

27463. And what it does is it goes through the various labour requirements by region in terms of project engineering, on-site employment, employment through contracted goods and services. And what it does is it looks at the total and then it breaks them down according to regional and Aboriginal.

27464. And, in essence, what it is showing is that, for the Alberta side of things, we're looking at, sort of 43 percent of the on-site labour force being local folks from within those regions. The likelihood is that most of the others will come from other parts of Alberta, and, again, other areas where you've got specialists.

27465. But for Alberta, it's -- or for British Columbia rather, it's about a 30 percent local hire. So the balance again would come in from other parts of Alberta. And you've got to, again, think that this is three contractors moving from spread to spread to spread taking their experienced workforce with them. So they will mobilize in one place and tend to simply move across the pipeline route.

27466. So when you have, you know, local opportunities, it's -- and the study identifies those -- there will be things like camps and catering, and a variety of other jobs that the local workforce is qualified to do and will probably be involved in.

27467. And then, as Tom Fiddler said, there is going to be attempts to develop training programs that will increase the percentage of local workers even higher than what we've got shown here. The percentages that we used were based on what's happened in -- with previous projects and I think the goal by Northern Gateway is to beat those targets because they think they can do better with a good, effective training program.

27468. **MR. VULCANO:** Okay, that makes a good segue into my next question which is on page 4-29, the next page. It's the seventh bullet on that page.

27469. **THE CHAIRPERSON:** Mr. Vulcano, we're there.

27470. **MR. VULCANO:**

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“...accelerating the number of registered apprentices...”

27471. What has been done to accelerate the number of apprentices up to now?
27472. **MR. TOM FIDDLER:** Mr. Vulcano, it's Tom Fiddler again.
27473. As Northern Gateway, we have -- and I'm really stepping out here, we've got a Panel that'll be speaking to some of the successes -- and I believe there have been some submissions recently summarizing some of our training and skills development initiatives.
27474. Some of them are in application stage, actually, but there are some activities underway and some advancement there; so I got to leave that.
27475. Beyond that, I can confirm and I have participated in discussions with the CLAC. So the Christian Labour Association of Canada is a major labour employer of CLAC skills trades people. As well as the PLCAC and they're four national labour unions.
27476. And as we've discussed previously, they are actively trying to grow their membership and running recruitment efforts. In -- in a number of cases, they've participated firsthand in open houses and forums that Northern Gateway has hosted recently for business opportunities as well.
27477. **MR. VULCANO:** So it's a -- it's a very early stage. If you had approval that it may be difficult to catch up with the apprentices you need.
27478. **MR. TOM FIDDLER:** Well, what I can say is that the Pipeline Contractors Association in particular have identified a significant shortfall in skilled tradespersons as well as a greying -- greying population, if you will, to use their phrase. So they are very aggressively trying to grow their -- their memberships and develop. There's a lot of industry activity, not only in the upcoming year, but forecasts leading up to Northern Gateway, as we've discussed in the past.
27479. **MR. VULCANO:** So you're leaving the onus on them. You've made it be known as an opportunity.

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27480. **MR. TOM FIDDLER:** No, we are -- we are actively pursuing and initiating activities with not only them, but with other social services organizations in the provinces as well as federally. And again, that's out of scope of my -- my competence to speak to the consultations.
27481. I think it's the consultation panel that will have some folks that are focussed on skills and training development that could speak to that more appropriately.
27482. **MR. VULCANO:** Okay, thank you.
27483. If we could move to page 433, sixth line down.
27484. **THE CHAIRPERSON:** Mr. Vulcano, just as Ms. Niro is going there, it's Sheila Leggett.
27485. We usually take an afternoon break at some point coming up shortly. Can you give us an idea of how much -- how many more questions or how much longer you expect to be?
27486. **MR. VULCANO:** Yeah, I'm only on page 1 of 9. I'll be -- four more questions and I'll be finished this particular exhibit. I'll be moving on to Volume 6C, Section 4.4.
27487. **THE CHAIRPERSON:** Okay. We had understood that you had about an hour and a half of questions, and so it sounds like you may feel that you have more time than that required. Is that correct?
27488. **MR. VULCANO:** Well, if the answers are going to be as long as they are, yes.
27489. **THE CHAIRPERSON:** So Mr. Vulcano, would it be appropriate now that I've interrupted you if we took our afternoon break now and then come back?
27490. **MR. VULCANO:** Sure. May I ask what time you came back?
27491. **THE CHAIRPERSON:** It's 2:20, so we'll come back at 2:35.
27492. **MR. VULCANO:** No. What time did you start this afternoon? It just

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seems early to me.

27493. **THE CHAIRPERSON:** Oh, well, we only -- we only sit until 3:30 in the afternoon, Mr. Vulcano.

27494. **MR. VULCANO:** Okay; I thought it was 4:30. I'm just -- so what time did you start this afternoon?

27495. **THE CHAIRPERSON:** We started at 1 o'clock.

27496. **MR. VULCANO:** I see, I see. I was understanding you started at 1:30. Okay, yeah. No, fine. Thank you. So I should call back in, then?

27497. **THE CHAIRPERSON:** You know, it would be fine if you remained on the line, if that works for you.

27498. **MR. VULCANO:** Yes, it does.

27499. **THE CHAIRPERSON:** Okay, so we'll come back at 2:35. Thank you, everyone.

--- Upon recessing at 2:20 p.m./L'audience est suspendue à 14h20

--- Upon resuming at 2:35 p.m./L'audience est reprise à 14h35

27500. **THE CHAIRPERSON:** Thank you, everyone.

27501. Mr. Vulcano, I'll leave it in your hands, but it may not be necessary to pull up each of the -- of the specific pages that you want to reference if you're just asking a question around them. So you may just be able to pose your question to the panel and -- and have them answer it.

27502. So with that, why don't we proceed with your next question of this witness panel, Mr. Vulcano.

27503. **MR. VULCANO:** Okay.

27504. **MR. NEUFELD:** Madam Chair, excuse me. It's Rick Neufeld speaking. If you can excuse me, Mr. Vulcano.

27505. We spoke with Board counsel or Panel counsel at the break, and she

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suggested to us that we might want to place some information on the record regarding Northern Gateway's intentions on examination of intervenor panels so that people might incorporate that into their time estimates. I can do that now or I can wait until the end of the day and address it before the end of the day.

27506. **THE CHAIRPERSON:** Thank you very much for raising it, Mr. Neufeld. Let's address it at the end of the day and let Mr. Vulcano continue with his questions.

27507. Mr. Vulcano, please go ahead.

PAUL ANDERSON: Resumed

COLLEEN BRYDEN: Resumed

COLIN BUCHANAN: Resumed

RAY DOERING: Resumed

TOM FIDDLER: Resumed

JEFFREY GREEN: Resumed

DAVID REID: Resumed

GORD ROZON: Resumed

JOHN THOMPSON: Resumed

MICHAEL PRESTON: Resumed

**--- EXAMINATION BY/INTERROGATOIRE PAR MR. VULCANO
(Continued/Suite):**

27508. **MR. VULCANO:** Okay, I'll still give the reference and I'll proceed and you can stop me if you're wanting to find it.

27509. I'm still on that same document page 4-33, the sixth line down. It says:

"Construction effects tend to be large, occur over a relatively short period and are characterized by pronounced peaks."

27510. So my question is, it shows the recognition that affects impacts will be large. What mitigation measures are being taken?

27511. **MR. JOHN THOMPSON:** Mr. Vulcano, the volume that you're taking this from speaks to provincial and national level project effects and so this is an appropriate characterization of effects at that level. You really need to be

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looking at Exhibit B8-2 to talk about the regional effects, which I believe is what you're more interested in.

27512. **MR. VULCANO:** Okay. My question still stands.
27513. Regional effects, what is being done to minimize the impact or to deal with it or mitigate, is the word?
27514. **MR. JOHN THOMPSON:** I'm afraid I don't understand the context of your question because, again, the document you referenced was for provincial level effects, not -- not regional.
27515. **MR. VULCANO:** I don't see that it matters. There's going to be effects. So there must be a plan that you're going to have to deal with those effects. Hopefully there wouldn't be negative ones.
27516. **MR. JOHN THOMPSON:** Well, okay, if we do go and look at some of the mitigation measures and things that are listed in Exhibit 8-2, I think there are plans in place that will be used to maximize benefits and to absolutely minimize potential adverse effects on communities and populations. And you know, what it essentially boils down to is -- is these construction camps are going to be moving across the province spread by spread.
27517. It will rely largely on external labour, but there will be opportunities for local folks and -- and so we've got the training and employment commitments that Northern Gateway has made to try and guarantee at least a base and go better where they can. And there are a number of commitments they've made in terms of local purchasing agreements and so on that will try and maximize those benefits for local people and local businesses.
27518. On the possible adverse side of introducing large numbers of people into areas with small communities, the camp model that are being used is probably the best way of managing those effects. By essentially having a self-contained camp where people are moving in for six months' period, doing their work and then leaving home, there really, really are very limited opportunities for camp workers to interact with the community.
27519. And by doing that, you really have limited the possible effects on policing, social services in -- in communities themselves. And what we're suggesting is that, as part of the development of the construction execution plans,

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- that Northern Gateway would go and talk to the communities to explain what the work camp will mean, the presence of that work camp, what it will mean in terms of demands for their services, their facilities, to negotiate potential arrangements for how things will be done and that those would then be included as terms and conditions that would have to go, then, to the contractors who would be bidding on these things. And obviously, those become reportable, monitorable effects that the contractors would have to take care of.
27520. So hopefully that addresses your question.
27521. **MR. VULCANO:** Well, at least the two questions I have further down, so I'll ask them now. The first one being, have any of those discussions begun with the communities giving them a heads up?
27522. **MR. JOHN THOMPSON:** There has, to some extent, in Kitimat. But one of the difficulties in doing socioeconomic work is that conditions change very, very quickly and so it doesn't make sense to go and make a whole bunch of plans and arrangements now because all it takes is one other big project or some other effect that could affect labour or what not and conditions have changed and you may have to renegotiate.
27523. So the intent is that once -- or if a certificate is issued, that at that point in the development of the construction execution plans, that there would be consultations with communities that would most likely be affected by project construction activities.
27524. **MR. VULCANO:** Okay. And my second question is, you're mentioning the camps are self-contained would be there for six months. Is it intended then that the people will not leave the camps on their time off?
27525. **MR. TOM FIDDLER:** Mr. Vulcano, it's Tom Fiddler again.
27526. So just to clarify because there is a whole accommodations and camp strategy that has to evolve as part of the construction execution planning and as my colleague has indicated in consultation with the local communities, as well as the large regional municipalities.
27527. Having said that, there are a couple of situations where camps may be left in place to be used two subsequent seasons. So basically there will be manpower loading or occupants loading for the four to six-month period, they

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would leave -- a very legitimate and real scenario is they'd leave for spring break up in the road bans and then they'd come back for summer construction. There's -- I can think of probably two of the camps that might end up being used in successive seasons.

27528. Beyond that, they'll be basically leapfrogged down the corridor and used. So that -- just to clarify that, with regards to days off, traditionally other than the -- well traditionally everyone vacates the camp, other than security and essential services on days off, turn around or shift breaks.
27529. The tradition that we've evolved to in the large bore industry is to only have 6-day work weeks so the Sunday is off they would typically stay in camp.
27530. **MR. VULCANO:** Okay. Where I'm coming from is I've been in a camp and you just go stir crazy. Even though they've got all the amenities there, you find yourself -- you go to the local bar for lack of something else. Is that going to be going on and will there be something done to take that into account?
27531. Because that's where the stress is going to come on the police community, for example, High Level, when I was at a meeting there, they said 80 percent of their policing was Thursday, Friday, Saturday nights in the bar because of the Shadow population, the workers from the camps coming into town.
27532. **MR. TOM FIDDLER:** So Mr. Vulcano, I'd refer you to a JRP IR 9.1. And as part of that response we provided examples of some of Enbridge's past expectations and what we intend to build on going forward.
27533. It included Enbridge's respectful workplace policy, our drug and alcohol work free -- or sorry, free workplace policy and some safety lifesaving rules and our -- an example, Code of Conduct for occupancy of the camp.
27534. And within those documents, you'll see examples of how we control and rely on the contractor's management and collaboration with our construction management to manage the workforce impact on local communities. What I mean by that is prohibiting some of the extensive interfaces that you're referencing that may occur.
27535. We certainly encourage people and we motivate them to leave on their extended days off. As I mentioned, on the Sundays the intention is, in the interest of safety, management and worker performance, that we afford that one day off a

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week if at all possible.

27536. **MR. VULCANO:** Has consideration been given to working in advances communities for establishing tours for workers so they may be familiar with the communities, what the communities are proud of, what they value, enhance the connection with the populous, and hence become less likely to cause disturbances, to feeling they are part of the community, having shared and become familiar with some of the amenities and background?
27537. **MR. TOM FIDDLER:** My colleague, Mr. Thompson I believe, alluded to the fact that as part of the discussions with local communities, we will be talking to them about their desires relative to their local amenities and the use of them by the population that would be in camps.
27538. A general comment though, again to put this in context and why it is different than some of the works you were referring to earlier, is that one of the reasons we have camps in almost all of the geographic locations that we're planning them currently, is because the travel time to and from the work is extensive and a safety hazard to the individual workers, as well as just optimizing daylight hours, to be honest with you, in winter conditions, in particular.
27539. So there's distance -- time and distance between almost all of the camp locations and adjacent communities, most of them well over an hour and a half to two hours each way. And that in itself obviously is an impediment.
27540. **MR. VULCANO:** Not really. I'm going -- I'd like to refer you to the aid to cross Shadow population document, page 9 of 52. It says -- let me know if you want me to wait until you catch up but I can read:
- “Research has indicated that a community with a high Shadow population relative to the number of permanent residents is at risk for increased social problems such as crime rates and substance abuse. One of the fundamental elements identified as being the cause of increased risk incurred is the decrease in social cohesion of the community.”* (As read)
27541. So the previous question I had was to try and say, if you just didn't have this stay in camp, don't drink in camp policy -- you obviously -- you also in your document -- you talk about accessing public parks and that is you might be able to increase the social cohesion by working with the Chamber of Commerce

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- and saying, here, take advantage, show off your community so they feel part of it rather than being extraneous and not feeling responsible when they do come in.
27542. **THE CHAIRPERSON:** Mr. Vulcano, did you have a question of the witness panel on this?
27543. **MR. VULCANO:** Yes I did. I gave it as the consideration given to working with the communities.
27544. **THE CHAIRPERSON:** And I believe that the witnesses have answered that question for you.
27545. **MR. VULCANO:** Well, they -- I didn't feel they did.
27546. **THE CHAIRPERSON:** Did you have another question resulting from that, Mr. Vulcano?
27547. **MR. VULCANO:** I'll just move on.
27548. Page 4.4-16; Table 4.4-16 notes needing 6,000 plus pipeline engineers, 2,000 plus pipe fitters, almost 1,000 welders and 1,600 teamsters. Which will the most difficult positions be to fill?
27549. **MR. JOHN THOMPSON:** Can we get that reference again please, Mr. Vulcano?
27550. **MR. VULCANO:** Page -- section 4.4, page 16 -- 4.4.16, it's Table 4.4-16.
27551. **MR. JOHN THOMPSON:** We're not ignoring you, we're just conferring.
27552. **MR. VULCANO:** That's okay; I'm having trouble finding it myself.
27553. **MR. TOM FIDDLER:** Mr. Vulcano, it's Tom Fiddler again.
27554. So underpinning our response is that we will have a formal contracting strategy but I can tell you that an element of that is to contract the work well in advance of mobilization of contractors to the work such that they can resource their key personnel in particular, which would be the skilled trades.

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27555. And given some continuity to this work, as we've talked about in the past, there's some appeal to it to the tradespeople.
27556. So having said that, we would expect that most of our contracts would be executed, awarded at least eight months in advance of mobilization of the contractors. That would allow them to align with sub-contractors that we would advise them have been pre-qualified to compete at a local level and support them.
27557. And so, to answer your question, my personal opinion is that local labour will be the larger challenge for them to source and -- and retain.
27558. **MR. VULCANO:** Okay, thank you.
27559. I'd like to move on to page 4.4-71. It says:
- "...assumed that 80% of people working on the Kitimat Terminal will be housed in construction camps and 20% will use local accommodation."*
27560. Later on, it says you're going to use the local accommodation after. Wouldn't it make some sense to use the local accommodation first?
27561. Wouldn't that be more of a benefit to the local economy?
27562. **MR. JOHN THOMPSON:** Mr. Vulcano, it's John Thompson.
27563. This is a discussion that we've been having with Northern Gateway right from the beginning. The workers at the terminal are actually going to be employed for quite a length of time and we do know that the population of the municipality of Kitimat has been dropping continuously and that there are a fair number of vacant dwellings in the area and that, if it were possible to use those dwellings, that would be a benefit for the community.
27564. On the other hand there is the question of whether the District Municipality of Kitimat wants project workers in the community. So we've posed this as a question and Northern Gateway is committed to work with the District Municipality of Kitimat to figure out exactly what its housing policies will be to do this balancing act between local benefits and local costs and there has been some discussion of that.

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27565. As I mentioned before there's a very specific IR response -- and that's Exhibit 47-10 -- that relates to the housing plans for Kitimat and what you'll see in that, again, is a commitment to consult. There's been a little bit of discussions to date but it doesn't make sense to get into a lot of detail yet simply because there are too many other things going on especially with -- with Rio Tinto now having a camp in the community and -- and whether it might be possible to piggyback on that camp or so on.

27566. So that's -- that's sort of the current strategy for dealing with housing in Kitimat.

27567. **MR. VULCANO:** Okay, so if I just understand, you've initiated the conversation and it's kind of, the ball's in their court to see how things go.

27568. **MR. PAUL ANDERSON:** Well, I think it's fair to say that there's -- sorry, this is Mr. Paul Anderson again, sorry.

27569. There's been -- we've had groups working in all of these communities talking about the issues and working for -- for a number of years now. We have now offices in -- in Kitimat and here in Prince George and they are working with the community.

27570. So I think there is an active consultation going on on behalf of the project. I think Mr. Thompson was referring just directly to the housing issue but I think there's been lots of conversations and they're ongoing.

27571. **MR. VULCANO:** Okay, I appreciate it's not as simple as it looks on paper.

27572. If I may, I'll move on to next question, page 4.4-74. It mentions in the top line:

“The data show that unemployment was highest in Coastal British Columbia (11.3%) and generally declined from west to east...”

27573. Is there a commitment to bring down the unemployment when the project is under construction and, if so, by how much?

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27574. **MR. JOHN THOMPSON:** One of the challenge -- it's John Thompson, Mr. Vulcano.
27575. One of the challenges in doing all of this is that Northern Gateway only has control over its activities and, as you can imagine, there are all sorts of other activities that are out there.
27576. I mean, if you think about it in terms of -- of the pine beetle, who five years or six years ago could have predicted that the effects that the pine beetle would have on the communities?
27577. I think that as a result of -- of employment during project construction and operations, it will have an effect on reducing unemployment in the communities but to what extent we can't say because it -- there are just too many other factors that are beyond our control that will determine what those unemployment rates will be.
27578. I would note that one of the things that's been happening in Central and Coastal British Columbia is that the size of the workforce has been dropping continuously over the last five years and that unemployment rates remain high. And basically what happens -- what it means is people are leaving the communities to go elsewhere for work and what this project does is it gives an opportunity for people to remain in their home community and find employment, initially during construction and then long-term during operations.
27579. So the bottom line is this project will be beneficial for especially Central and coast of British Columbia.
27580. **MR. VULCANO:** Okay, I'm just -- like -- you mention the figure and make reference to unemployment and availability a number of times and you sort of leave it to the reader to connect the dots and say: Well, that will lead to a decrease in unemployment.
27581. And I was seeking to say: Well, that, you know, it's more than a token statement that you're putting there but I guess you're saying this is a question of you can't make a commitment to actually do that.
27582. **MR. JOHN THOMPSON:** No, it makes no sense to make a commitment because, as I said, there are too many things beyond your control that affect those unemployment rates.

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27583. The one thing that we have continued to do as you'll notice that the most recent date on that graph is March 2010. We continue to monitor unemployment rates and population change in those communities because it helps us understand exactly what's happening so that, as time goes on, we're in a better position to be able to figure out what the right thing to do is.

27584. **MR. VULCANO:** Okay.

27585. And I'll move on to page 4.4-79, about half way down the page, it says:

“Other components of Northern Gateway’s strategy for encouraging local and Aboriginal participation in Project construction and operation include providing:”

27586. How successful have the strategies been to date?

--- (A short pause/Courte pause).

27587. **MR. TOM FIDDLER:** Just give us a moment, Mr. Vulcano.

27588. **MR. VULCANO:** Certainly.

27589. **MR. TOM FIDDLER:** There's been a recent submission that I referenced earlier that I wanted to just point out to you and we wouldn't necessarily have to go there, but it's a summary of initiatives and accomplishments to date as well as activities that are in progress.

--- (A short pause/Courte pause)

27590. **MR. TOM FIDDLER:** Mr. Vulcano, I'll point you to recent reply update B93-26.

27591. It was submitted on July 2012 and Section 4, in particular, relates and is titled specifically -- just going to it quickly here -- *Employment Training and Business Initiatives* and I would point you to that, it again identifies accomplishments and successes to date as well as initiatives in progress.

27592. **MR. VULCANO:** Okay, thank you. Page 4.4-89:

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“It is assumed that regional residents, including Aboriginal workers, will account for 27% of pipeline jobs and 25% of jobs constructing the pump station.”

27593. Where will the other 74 percent come from, my guessing you’ve answered this generally from a previous question I asked?

27594. **MR. TOM FIDDLER:** That's correct, Mr. Vulcano.

27595. The expectation is that they -- those workers will be part of the contracting spreads that -- the contractors work force and that they’ll simply move across from spread to spread.

27596. Similarly, the skillsets required to do the pump station are somewhat specialized and they will be brought in from outside the regions to do that work.

27597. **MR. VULCANO:** Okay.

27598. I’ll move onto page 4.4-94, On-site Construction:

“Regional residents, including Aboriginal workers, are assumed to account for 30% of pipeline [employees][...], 30% of facilities-related jobs, and 30% of [the] jobs at the Kitimat Terminal.”

27599. Then in a summary it says it becomes 56 percent. It says:

“Labour availabilities are various reasons why regional residents will account for 56%.”

27600. So how did the 30 percent get to become 56 percent?

27601. **MR. JOHN THOMPSON:** That’s the combined effect of both the direct employment related to on-site construction. But as well, if you look in the paragraph immediately above talking about contracted goods and services, you’ll see 71 percent will be supplied by regional businesses.

27602. So if you were to combine the 30 percent on-site with the 71 percent contracted, you wind up with a sort of weighted average of 56 percent.

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27603. And I'd just point for those that are looking on, these are the numbers that relate to activities in the coastal British Columbia region which involves the Kitimat Terminal, one pipeline spread and the pump station.

27604. **MR. VULCANO:** Thank you. That answers that question.

27605. Page 4.4-169. It's going to be in the last sentence:

"Therefore, social and health care services [in smaller communities] are so overburdened that it is [...] difficult to obtain appointments, and residents of [other] communities must travel some distance to access these services."

27606. Isn't the presence of a pipeline going to exacerbate these circumstances?

27607. **MR. JOHN THOMPSON:** It shouldn't. Again, what we're looking at in terms of health care facilities and whatnot is that the camp will have the basic requirements for dealing with most of the day-to-day health issues that will arise during construction. What it will not have is the facilities to deal with major emergencies.

27608. The plan is that as -- again part of developing the construction execution plans that the --Northern Gateway would be discussing potential issues with the major hospitals across the route; understanding what the protocols are. You know, whose going to be the best location to go in case of emergency.

27609. And so the only situation where you're going to have reliance on -- certainly medical facilities will be if there's a major emergency that's beyond the capacity of the camp.

27610. **MR. VULCANO:** Won't there be extra demands on the RCMP detachments?

27611. **MR. JOHN THOMPSON:** Again the expectation that these camps will be -- they'll be dry camps, they'll be contained camps. There should be minimal interaction.

27612. And as Mr. Fiddler has pointed out, there will be very specific policies

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- related to alcohol consumption by workers. And I think he can speak to what the practice has been recently, related to what happens to project workers that go off and misbehave in local communities.
27613. **MR. VULCANO:** Okay, will he do so?
27614. **MR. TOM FIDDLER:** Sure will.
27615. So there are camp policies, and often depending on the organization we may have an administrative, if you will, governance team in the camp. At times though, if it's single contractor, they will rule the roost, so to speak, with their management team and Enbridge's management team.
27616. There is zero tolerance for drug and alcohol abuse in the camps, and for violence and behaviour that is in contradiction to our respectful workplace policy. So it's not a couple of strikes and you're out type process; it is zero tolerance in those regards.
27617. **MR. VULCANO:** Okay. Thank you.
27618. Page 4.4-172. It's the last bullet on the lower part:
- “Working with local communities to establish the terms and conditions under which project workers would be allowed to use local [...] facilities.”*
27619. Has there been thought about how communities will be compensated for establishing liaisons and authorizing decisions on behalf of the community?
27620. **MR. JOHN THOMPSON:** It's John Thompson speaking.
27621. As we discussed earlier, that hasn't happened yet but it will be done as part of developing the construction and execution plans. Certainly the camps will have a full range of recreational and leisure features, again self-contained.
27622. The only spot where I see this potentially being an issue is the Municipality of Kitimat where you may have workers that are housed in -- you know, outside camps in commercial and other accommodation. And so obviously we'll -- Northern Gateway will have to sit down with the district municipality and figure out what the rules are in advance of things happening.

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27623. And so this is a -- you know, coming to agreement with your new neighbour as to what the rules are going to be.
27624. **MR. VULCANO:** Who would be authorized to make the decision then on behalf of the community?
27625. **MR. JOHN THOMPSON:** I would expect that you would be going and talking to the mayor and council. But as well, the individual managers for the various service providers to understand -- you know, what's their capacity, what are the constraints, and what are the opportunities and how we can make this work best for all involved.
27626. **MR. VULCANO:** And how will success be measured?
27627. **MR. JOHN THOMPSON:** During construction we'll be developing sort of a series of indicators that will be used to judge the success of -- you know, the full range of interactions with local municipal governments and service providers.
27628. It makes sense that if you're going to develop a construction execution plan for the contractors that has all of these requirements, that incidents would be reported and dealt with, sort of -- you know, deal with things as you go. And that we would in fact be keeping track of potential issues, incidents, how they were managed and whether there were any residual concerns.
27629. I think once you get into operational mode, when these people become full residents of the communities in which they're based, that there will probably be no real need to continue to monitor those sorts of events because the workers will be full-time members of the communities.
27630. **MR. VULCANO:** Thank you.
27631. My last question, page 4.4-176, the second-to-last paragraph, last sentence:

“Overall, the benefits of increased regional incomes should exceed any adverse effects resulting from increased demands on police and social services.”

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27632. Who gets to decide if benefits outweigh adverse effects?
27633. **MR. JOHN THOMPSON:** Mr. Vulcano, I don't think anybody makes that determination per se. That's our assessment of what we believe will happen.
27634. What this assessment though fails to consider is the extent to which the municipal tax bases of the various communities and rural areas along the route -- the extent to which they would benefit. And frankly, there are some fairly significant annual tax benefits once the project is in operation.
27635. **MR. VULCANO:** Yes. I guess there would be but who's going to decide -- look where those -- who gets to decide that those extra benefits outweighed the adverse effects, which from my previous question you said you would be monitoring and hopefully minimizing?
27636. **MR. JOHN THOMPSON:** Again, this is our interpretation of what we believe the -- the project effects will be.
27637. I think, at the end of the day, it's up to the individuals involved to make their own determination. That's not a decision that has to be made here.
27638. You know, the thing that has to be pointed out is the bigger picture and that is this project will be providing employment opportunities for a fair number of local people. It will be providing training that will certainly be useful during the time period during which local people would be employed but it will also increase their abilities to find employment after project construction has ceased.
27639. And we think that those benefits combined with the municipal tax payments, the ongoing employment during operations, that all of those things will outweigh any costs that will come along especially since we're aware of those costs and are going to be working with municipal governments and local service providers to make sure those costs are absolutely minimized.
27640. **MR. VULCANO:** Was that ---
27641. **MR. TOM FIDDLER:** Mr. Vulcano -- sorry.
27642. **MR. VULCANO:** Go ahead.

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27643. **MR. TOM FIDDLER:** I was just going to add and build on that just briefly.
27644. We have a Northern Gateway objective to assure that we have significant benefits far outweighing the potential negative impacts or the actual negative impacts.
27645. We've talked briefly about intentions and we will, in fact -- are committed to putting in place metrics and measures to that extent and, you know, along that line we're certainly stepping forward already with involvement with the chambers of commerce with all the communities along the way and our ongoing activities with the CABs.
27646. So we hope to have consultation on a continuous basis and communications. As we talk about these construction execution plans, one of the aspects of them will be a -- an operational construction execution plan in terms of communications if you will.
27647. So who are our people on the ground front line? Who are the communities and first responders front line personnel and -- and introducing ourselves to each other and building relationships that hopefully will stand the test of time as we construct the project and go into operation.
27648. **MR. VULCANO:** Could you have an ongoing evaluation that you could run by the chambers and the mayor and councils and other interested parties to say, well, are you getting the benefits? What are they?
27649. And has that been better than any adverse effects? So you have a quantifiable measurement.
27650. **MR. TOM FIDDLER:** I think what you're suggesting is all within the scope of consideration going forward.
27651. It makes sense but I can't commit to that at this stage. I believe that it's just a natural activity that will happen in those forums though with the chamber of commerce and with the CABs, we will be exposed to feedback whether we encourage it or not, I would expect.
27652. But we certainly will talk with them and I'll commit to that. We'll talk to them about how we measure effects going forward.

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27653. **MR. PAUL ANDERSON:** And, you know, I can say that we are members of the chamber of commerce along -- along all of the route and we are working -- working with them and -- and we will be soliciting that -- that feedback to make sure that, you know, we stress throughout this process to try to maximize benefits and minimize impacts and we're certainly going to be measuring that ourselves and we'll be sharing that information with the -- with communities along the route.

27654. **MR. VULCANO:** Okay, thank you.

27655. Thank you, Madam Chair. I'm finished my questions.

27656. **THE CHAIRPERSON:** Thank you, Mr. Vulcano.

27657. Before you go, can we get an AQ number, Ms. Niro, for Mr. Vulcano's AQ package?

27658. **THE REGULATORY OFFICER:** We are now at AQ 42. We had AQ41 for Enoch Cree nations.

**AID TO CROSS-EXAMINATION NO./AIDE AU CONTRE-
INTERROGATOIRE No. AQ42-A:**

*Terry Vulcano – Shadow Populations in Northern Alberta – Part 1 –
Quantification – Prepared for the Northern Alberta Development Council by
Mary Joan Aylward dated July 2006*

27659. **THE CHAIRPERSON:** Again, Mr. Vulcano, thank you for joining and asking your questions remotely.

27660. **MR. VULCANO:** Thank you.

27661. **THE CHAIRPERSON:** So, Mr. Neufeld, you had some information that you wanted to provide that Panel about questions of intervenor panels?

27662. **MR. NEUFELD:** Thank you, Madam Chair, and I think it will be received as good news.

27663. We've been in the process of reviewing Northern Gateway's plans for

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- questioning of intervenor witnesses and I can tell you that we've done so with a view to sharpening our pencil and trying to make sure that, to the extent possible, that the Panel is able to conclude the -- what I would consider to be the pipeline portion of this proceeding aside from the Kitimat River Valley issues, here is Prince George.
27664. We had earlier estimated, as per the matrix, some 17 hours of questions for intervenor witnesses and the aggregate. A few things have happened since then and one is that some of the Haisla witnesses will be presented in Prince Rupert so that lopped off a significant amount of time in itself. They will still have two appearing here either in person or by phone who we will have some questions for but less than we had originally estimated of about five hours.
27665. Secondly, we've had a very -- a closer look at the submission of the office of the Wet'suwet'en. It contains a mixture of traditional use evidence which we've not asked questions on previously and don't intend to be asking a lot of questions on going forward as well as arguments and -- and some information relative to fisheries matters that I think have been canvassed.
27666. So we don't need to have the Office of the Wet'suwet'en witnesses presented for the purpose of questioning by Northern Gateway. That will save us a fair amount of time I would think.
27667. We've also re-examined the Northwest Institute cross-examination estimate and, while we'll still have some questions for Mr. Bustard or another representative of the Northwest Institute on matters going forward, we don't need to have produced for questioning Mr. Schwaab, in particular, and our estimate for cross-examination of the Northwest Institute would be reduced from 3 hours to approximately an hour.
27668. We've also looked at the other -- generally, at the other intervenor witnesses or panels and I can tell you that, particularly for those that are phoning in as it were, the length of our questioning will be shorter.
27669. The result is that we think that, as opposed to the 17 hours that was originally allotted for Northern Gateway to question intervenor witnesses, we can have it done in about 6 or 7 hours.
27670. I mention that now because I think we are reaching a point where

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we're likely on my estimate of the schedule to have this Panel in a position where it could be excused by the end of this week and I would hope, anyway, and then it would be logical to resume with the -- with the intervenors and the Government of Canada on the 22nd of November as planned and I think we can get everything done by November 29th which I think everyone would want to accomplish as far as the pipeline portion of the hearing.

27671. Thank you.

27672. **THE CHAIRPERSON:** Thank you for the update, Mr. Neufeld.

27673. So with that news we'll get out of school 7 or 8 minutes early this afternoon and we'll have the Haisla begin their questions of this witness panel first thing tomorrow morning at 8:30.

27674. So thank you very much, everyone. Have a good evening.

--- Upon adjourning at 3:21 p.m./L'audience est ajournée à 15h21