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Enbridge Northern Gateway Panel 4

Pipeline & Terminal Environmental & Socio-Economic Assessment Panel

Mr. Paul Anderson	Ms. Colleen Bryden	Dr. Colin Buchanan
Mr. Ray Doering	Mr. Tom Fiddler	Mr. Jeffrey Green
Mr. David Reid	Mr. Gord Rozon	Mr. John Thompson
Mr. Michael Preston		

Examinations

Examination by Mr. Chris Tollefson for BC Nature and Nature Canada (continued) 25050
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Examination by Mr. Chris Tollefson for BC Nature and Nature Canada (continued) 25050

Mr. Tollefson asked, "Would you agree that the Northern Gateway Project should not be allowed to proceed unless the Proponent establishes that the project will not adversely affect the long-term viability of any of the caribou populations that are identified in this Application?" Mr. Anderson replied, "This process is about [determining] if there would

be significant adverse effects and how we would avoid them. That would include significant adverse effects to caribou."

Conservative approach in the ESA

Mr. Tollefson asked Northern Gateway to confirm that it has adopted a conservative approach as explained in this description of its environmental assessment methods from the application: "…methods for all biophysical and human environment disciplines includes approaches that result in a conservative assessment of environmental effects (i.e. tends to overestimate the potential effect)." Mr. Anderson confirmed it.

Mr. Tollefson asked for affirmation that the "scoping areas" in the assessment include: 1. "project development area" (PDA) which is the pipeline footprint, a 25-metre temporary workspace, and some additional workspaces, the pump stations and the marine terminal; and 2. "project effects assessment area" (PEAA), a 1 km wide corridor with the pipeline in the centre; 3. "regional effects assessment area" (REAA), a 30 km wide area centred on the pipeline.

He questioned whether they are looking at just a 30 km swath for caribou habitat and considering that to be ecologically meaningful, or the caribou range. "What is the scientific basis for suggesting that's an adequate window?" Mr. Green said, "There's rationale for why … we would choose the area we did." 25113

Caribou range and pipeline route maps

Mr. Tollefson said "we will look at some of the maps that have been supplied by the Proponent (Exhibit B59-3) of the interaction between the pipeline corridor and caribou range." The full discussion begins at paragraph 25128.

The first map is on page 19, map 19 of 65. Ms. Bryden confirmed that the area marked is the range for the Little Smoky herd, one of the subjects of the Boreal Caribou Recovery Strategy discussed yesterday. Next is page 4 of Exhibit B59-4, map 28 of 65. It shows some of the range of the Narraway herd. Mr. Tollefson continued with a sequence of maps/pages from the same exhibit, as the pipeline route moves through different herd ranges. 25155

Mr. Tollefson then put up an aid to questioning (AQ), which is the October 2012 caribou census from the BC government, including a map showing winter and summer telemetry data. He reviewed it with the hope to obtaining agreement with its contents, so he could ask that it be accepted in evidence, but he obtained agreement to very little. 24238

He put up another AQ, this one being the same map, with the pipeline overlaid. Ms. Bryden would not agree that it was the same map as shown immediately previous, because it does not specify a date range, but it is telemetry data from the same study. Following an objection by Mr. Langen, the Chairperson said that "the Panel does not find this a useful AQ … so we'd ask you to move on."

Ms. Bryden put up Figure 9.5 from Exhibit B3-7. They discussed migration, that some herds migrate geographically, others migrate altitudinally. Mr. Green interjected to note

that a high percentage of the pipeline route – 70% - is through already disturbed areas, mostly forestry cutblocks. Apart from Imperial Creek to the Mesilinka River which is in the Hart Range, the route through the majority of the caribou habitat is following linear features. 25330

Meeting with government agencies

Mr. Tollefson put up Exhibit B41-14, a listing of consultations undertaken by the Proponent with Environment Canada and with provincial agencies relative to wildlife and wildlife-related routing and other issues. 25372

Types of habitat alteration & methodologies

Mr. Green explained the concern for caribou relates to two types of habitat alteration. "Functional alteration" refers to large blocks of contiguous or core habitat that allow a species to meet all of its needs. A particular concern for caribou is security from predation. "Habitat effectiveness" refers to the important habitat attributes that provide food, security, thermal cover and so on, as well as security from various types of disturbances. "We look at the habitat quality and then we apply a disturbance buffer [which determines] whether or not a species may … be able to use that habitat." 25426

In Section 9.2.1 of Exhibit B3-6, NGP is looking at changes of habitat availability, mortality risk and movement. Mr. Green said, "[here] we're scoping the types of effects that we believe we should be addressing in this environmental assessment." 25451

Winter feeding availability and effects of the pipeline

Mr. Tollefson then turned to winter feeding availability, and impacts of the pipeline, Table 9-56 of B3-7 for construction, and Table 9-57 for operations. Mr. Tollefson noted that "the conclusion recommended in the ESA was that this [the construction impact] was not a significant environmental effect." Was this because it is a temporary activity? Ms. Bryden said construction is of relatively short duration and for some of the herds, it won't happen during the winter season. It begins in the transcript at 25458.

Buffers

This discussion moved into questions about sensory disturbance buffers. During construction with NGP, they are 500 metres either side of the pipeline; but reduced to 100 metres post-construction. Mr. Tollefson put up AQs from Sorenson, from the Boreal Recovery Strategy, and from the BC Forest Practices Board which recommends larger buffers. 25528

Mr. Preston explained that Environment Canada "looked at a bunch of different scenarios that were predominately related to recruitment of caribou and the model that they found that best explained recruitment was a 500-metre buffer around anthropogenic disturbance and forest fire." 25583

An extensive discussion ensued when Mr. Tollefson asked to have the Sorenson AQ accepted in evidence. This developed into a request for an undertaking to reproduce Table 9-57 with columns showing the difference if Sorenson buffers were implemented

instead of 100 metre buffers. Mr. Green replied that they have, in effect, already done that on page 67 of Exhibit B32-2. The request was denied by the Panel. 25620

Mr. Tollefson asked if pipeline right-of-way buffering of 100 metres is not the conservative buffer, given the "range of approaches available". Mr. Green replied that the analysis should involve consideration of more factors than just an arithmetic one. He described some of those considerations relating to "the creation of linear feature densities and the increase in wolf predation," including the parallel PTP pipeline and NGP's habitat restoration commitments. 25650

Distinction between summer and winter habitat

Mr. Tollefson asked if summertime is a time of high mortality risk for females and young calves? Ms. Bryden replied that with southern mountain herds - Hart Ranges, Narraway in B.C. and the Quintette herd - recent work indicates caribou are more susceptible to wolf predation during the summer than at other times of the year. 25711

Migration and movement, linear features

Mr. Tollefson asked what the knowledge basis is with respect to distance and location of migration. Ms. Bryden replied that this information is "not well-known for these particular herds." "For the Quintette herd and the Narraway herd, I'm not aware of any specific migration corridors that have been identified." 25773

Mr. Tollefson quoted from B3-7 that "Many mammals will avoid linear features" and "It is presumed that with human use of the RoW reduced through strict access controls, caribou will cross the RoW." He asked, "What is the basis for this presumption?" 25797

Mr. Anderson said that it is their experience and the experience of resource managers that caribou do cross rights-of-way. Mr. Green said that their focus on access management is on reducing both human and predator use of that right-of-way. He discussed some of the techniques to achieve reduced human and predator use to encourage caribou use. Mr. Tollefson also wanted to know about discussions with the Province of BC to discuss whether caribou will cross the corridor and what issues need to be addressed in that regard.

The predator/prey dynamic

Mr. Tollefson asked about the predator/prey dynamic with respect to caribou and wolves. Mr. Green said that in BC through forestry and other disturbances we're creating younger, serial vegetation that benefits species like moose and deer. With that, wolves have a much bigger prey base and the wolf populations as a result are increasing. Hence, there are more wolves and more prey.

Caribou use the strategy of predator-avoidance by staying at very low densities in large core habitats, but they are finding that because of the population growth, the frequency of contact with wolves has increased. And so that is viewed by biologists as the immediate threat and that restoration of the habitat is the ultimate solution. In the recovery strategies, priority is given to reducing linear access immediately and then restore habitat. "And

that's essentially the fundamental basis of the mitigation we're proposing." The full discussion begins in the transcript at 25875.

Linear density, thresholds and the Sorenson model

Mr. Tollefson used Table 9-79, Change in Linear Feature Density within the REAA, in B3-2 to discuss linear densities. In some instances linear densities of the habitat range outside the REAA is greater than those inside. Mr. Tollefson asked questions about this. He also asked about the threshold for linear density used in the ESA of 1.8 km of linear feature per square km. NGP originally assertion that it came from "Francis et al. (2002)," but in an erratum filed on October 30, 2012, NGP stated that the mention of "Francis" was a clerical error and it should have said "Salmo and Diversified (2003)" These discussions began at 25887.

NGP used the linear density threshold of 1.8km/km^2 proposed in Salmo and Diversified (2003), whereas "the Sorenson model" "is an alternative way of looking at habitat availability effects, for example, on caribou population viability. This is largely in agreement with the approach used by the federal recovery strategy for boreal caribou," according to Mr. Preston. The federal strategy does not mention linear density or linear density thresholds. It is entirely based on recovery of disturbed habitat. 26019

One of Mr. Tollefson's AQs is the Forest Practices Board's Case Study for the Kikatinaw River Watershed, part of a report entitled Cumulative Effects: From Assessment Towards Management. The case study said that "Caribou are widely reported to be sensitive to industrial activity. It is believed that they avoid most human disturbances and that they require large, undisturbed areas of habitat." The study used three, somewhat interrelated, indicators of this concept, which Mr. Tollefson discussed with the witness panel. 26071

More discussion of the 1.8km/km^2 .threshold, Francis, etc. can be read in the transcript.

Examination by Mr. Jim Monroe for Daiya-Matess Keyoh 26273

Mr. Monroe stated that he has one question, with respect to Exhibit B74-8. "Do you still maintain that none of the areas, activities, species, specific sites, systems, practices or other rights require further measures to mitigate beyond those proposed as part of the application in Volume 6A, except to address concerns of the Keyoh holders regarding existing access management problems?" Mr. Anderson replied that is correct "in a general way", though they will "get more detailed," and "will need to get site-specific information that we'll collect … but also … that … you could assist us to collect." 26273

Mr. Monroe asked, "What is your timeline?" Mr. Anderson said "The detailed routing of the pipeline occurs or will occur post-certificate."

Examination by Mr. Tim Leadem for the Coalition 26293

(ForestEthics Advocacy, Living Oceans Society & Raincoast Conservation Foundation)

Mr. Leadem said that he will be questioning on ESA methodology; caribou and the Telkwa herd; plants with respect to fisheries and water crossings; and the Environmental

Protection Management Plan.

He asked first if "it is important to follow the modelling work with field studies." Ms. Bryden replied "We did both … as part of this assessment," and "Additional field work is planned… But we're not specifically intending to conduct field work to verify the habitat models used in the assessment." Mr. Leadem: "Then you're relying upon the habitat models alone?" Ms. Bryden: "That planning level we used habitat suitability models. And that component is complete."

Development of "habitat compensation plans"

Mr. Green said they are doing "a more detailed analysis of linear features to aid in what we're referring to as this linear feature removal or habitat compensation plan." "The intent is to develop a plan for each of the five caribou herds and there's some other wildlife sensitive areas that we're focussing on." These would include a level of consultation with stakeholders before being filed with the NEB. 26317

Mr. Leadem asked if environmental non-governmental organizations will be included with other stakeholders who sit on their Community Advisory Boards (CABs). He asked which groups are on those community boards. Mr. Anderson said he couldn't provide a list, but the invitation went out quite broadly, and is still open. 26327

Mr. Leadem asked about timeframes. Mr. Anderson said they envisioned a staged rollout. "We would see, post-certificate, going out and completing the plans." 26337

With respect to the habitat suitability models used for wildlife, were "any ecological drivers such as global climate change or forest transitional types [used], in order to see the impact upon those models of those two variables?" Ms. Bryden said that they did not incorporate climate change, but did, "to some extent," incorporate forest transition or succession. "Mountain pine beetle was incorporated generally." 26348

"Did you derive any variance or confidence intervals around the results that you obtained?" Mr. Preston replied, "We provide a reliability indicator which is taken from the Provincial Wildlife Habitat Ratings Standards Manual. And we also provide a prediction confidence measure" (Table 9-74 in Exhibit B3-7). 26353

Has the environment already exceeded certain thresholds?

Mr. Leadem asked, "Do you agree that the existing pre-proposed state of the environment may already be affected to the point that thresholds for acceptable effects are exceeded?" Mr. Preston said, "It's a very big question. There's a lot of moving parts…" The ensuing discussion picks the question apart and readers might wish to follow it from 26360.

Mr. Leadem said his question contains the concept of shifting baselines, and some discussion follows about baselines. 26373

Mr. Leadem asked, "Do you accept that there will be incremental change to wildlife habitat as a result of this particular project? Mr. Green: "I think we would agree that that's fair; that we've tried to quantify that change." 26383

"Do you accept also that it may not be possible to completely mitigate for the habitat loss that you're creating?" Mr. Green: "It's always difficult to say that one can put back exactly what was there." Mr. Anderson said that the goal is a net gain in habitat. 26391

Terrestrial ecosystem mapping

Mr. Leadem and Ms. Bryden discussed terrestrial ecosystem mapping and its appropriateness for linear disturbances rather than the large-scale forestry projects for which it was developed. Mr. Leadem asked if they are familiar with BC's draft quality assurance guidelines to ensuring that the habitat suitability indexes are carried out appropriately. Ms. Bryden said, "They are best practices and we have conformed to a lot of the steps in that process." 26404

Mr. Leadem closed with the comment that he will come back to this tomorrow at length.