Enbridge Northern Gateway Project
JRP Hearing Notes

Day 30 – November 1 2012 – Prince George – Vol 98

International Reporting Inc. - Vol.98-ThuNov01.12 - A3C9V1

Contents

Order of Appearances

Enbridge Northern Gateway Pipelines Panel #3

Pipeline Operations, Emergency Preparedness & Response Panel

Mr. Kevin Underhill	Mr. Allan Baumgartner	Dr. Frank Bercha
Mr. Dale Burgess	Mr. Barry Callele	Mr. Ray Doering
Mr. Jeffrey Green	Dr. Matthew Horn	Mr. Walter Kresic
Mr. Greg Milne	Dr. Jack Ruitenbeek	Dr. Malcolm Stephenson
Dr. Elliott Taylor		

Examinations

Preliminary matter brought forward by Mr. Langen & Dr. Horn 21272

The final topic discussed yesterday was about river velocities. Dr. Horn erred in his explanation that the Jobson Empirical Relationship was a calculated figure whereas the Bridge Crossing Rating Curve is from measured values. The Bridge Crossing values are also the result of calculations.

Examination by Mr. Richard Overstall for the Northwest Institute for Bioregional Research & the Friends of Morice-Bulkley (continued) 22196

Water velocity

Mr. Overstall returned to Table B.3-11 in Exhibit B80-4 which shows contrasting methods of evaluating velocity: the Jobson Empirical Relationship and the Bridge Crossing Rating Curve. The two methods produce significantly different velocities. He asked Dr. Horn to reconfirm that the Bridge Crossing values were calculated. 22198

Logjams

Mr. Overstall asked if the model was able to predict velocities downstream of logjams. Dr. Horn said the logjam is presented to the model as a bank of a given type, and it is able to calculate velocity from that. But "the Jobson equation calculates the average velocity in the water channel throughout" and so does not calculate a velocity for *a* logjam at *a* location. 21310

Mr. Overstall hypothesized a logjam which is damming the upriver end to a back channel or side channel during the spring freshet with associated high flows and sediments. When the water gets into the back channel, then the sediments will be dumped. Dr. Horn agreed that this will occur, but pointed out that only a small portion of the streamflow and the sediments will get into the back channel. And if there is oil in the water, only a small portion of it will get into the back channel where it can "sediment out if it's agglomerated with sediments." Plus, he said, "a logjam is an intricate matrix of a lot of areas and surface area for oil to stick to."

Condensate, and ice conditions

Mr. Overstall quoted from Exhibit B80-2, "Once the stream begins flowing and, to the extent that the oil flows under the ice, evaporation would be prevented and volatilization from the water would be slowed," and from Exhibit B80-3, ""The condensate would evaporate substantially under low-flow conditions, with high winds, and to a lesser extent under high-flow conditions where lighter winds prevail." 21355

He then asked, "Would eliminating winds due to ice cover extend the acute effects of condensate further downstream?"

Dr. Horn first pointed to the statement in B80-2 that "ice cover was not modeled." He then digressed to a number of considerations relating to the mechanism by which the condensate got under the ice, which suggested that the hypothetical scenario was unlikely or unrealistic. Dr. Taylor offered similar comments, that hydrocarbons tend to become the ambient temperature quickly, viscosity rises, and snow is an effective sorbent. 21360 .

Dr. Horn said he may have answered the question to some degree in the modelling exercise. “We’ve actually put the full volume of the condensate into the water under low flows and this does kind of mimic that worst-case winter condition under the ice. Although we didn’t allow for ice or snow cover on the surface, we still did have those tremendously high in-water volumes and concentrations.” 21370

Dr. Horn finally answered Mr. Overstall’s question: “I think in the hypothetical that you’ve posed, the answer is yes, there would be the potential for more acute effects because there wouldn’t be evaporation if there was ice, assuming that you injected the condensate under ice.” 21374

Mr. Overstall asked, “Does it then follow that the bitumen condensate mix would then also be slower to evaporate and then would also extend further downstream? Dr. Horn said that the high viscosity of dilbit makes it more unlikely that it would make its way to the water column and into a crack in the ice. And because evaporation is not such a large parameter for dilbit, once under the ice its effects would be much less than its effects on condensate. 21385

Mr. Overstall’s last question relating to condensate and ice was, “in the hypothetical that we’ve been discussing that [condensate is] going to travel further than in summer conditions or non-ice conditions,” whether the acute effects of the condensate could extend out of the Morice River and into the Bulkley River. Dr. Horn said that he hadn’t agreed that condensate will move further under ice. 21392

Try a Google search

Mr. Overstall asked Dr. Taylor about the variables he mentioned as to the behaviour of both the bitumen and the condensate under snow and under ice – “is any of that information in evidence in this proceeding?” Dr. Taylor suggested a Google search. 21383

Mortality of aquatic biota & sufficiency of modelling

Mr. Overstall turned to Table 7-14, Area and Percent of Total Area for Mortality of Aquatic Biota in Morice River Scenarios, in Exhibit B80-3. It gives sets of data for sensitive species and for average species. This discussion is difficult to follow and complex. It begins at 21410.

Dr. Horn explained that one set of figures assumes that all species are sensitive, and the other assumes that they are all average. In actuality, an ecosystem is composed of some sensitive, and some average species. Salmon fall in that range, too, more sensitive at some stages, less sensitive at others.

Dr. Green commented about the extent of modelling of factors and ecological indicators NGP has done in this application. “We’re dealing with over sort of 10,000 modelling combinations. I don’t think that’s an insignificant effort.” “We’re not trying to say that this is the maximum or minimum amount of habitat that might be affected, we’re using this as an example of the types of effects that might occur.” 21431

Mr. Overstall asked, “Is the issue not so much how much effort and how complex your model is but rather is your model sufficiently complex enough to match the even greater complexity of this natural system?” “You would agree that, as the end product of this model, that there is no information yet into this process as to what species are at risk? So what are the consequences?” Mr. Langen objects that the question has been asked already. 21450

Spawning beds and chronic effects

Mr. Overstall introduced questions about the characteristics of sediment pore water in the Morice River and the nature of the streambed. Dr. Stephenson said that 10 degree water was taken as an average temperature. 21462

Dr. Stephenson said that they assumed there is a salmon spawning bed at each of the assessment locations downstream of the spill point and that the spawning salmon change the shape of the gravel beds. “We have hyporheic flow -- “hypo” meaning “below” and “rheic” meaning essentially the gravel substrate of the river -- so that we have river water that is being entrained downwards into the gravel and then exiting from the gravel at a point downstream as a result of hydraulic influences that are either created by natural variation in the riverbed or augmented by the activity of the salmon as they create the redd. 21492

Mr. Overstall examined aspects of the spill response, including removal or remediation of extensive oiling to debris and spawning gravels, and persistence of toxic levels which might lead to longer term chronic impacts. 21496

Control points on the Morice

Mr. Overstall examined control points on the Morice River, downstream from the pipeline, illustrated in Exhibit B17-11. In asking about the limited number of control points, Dr. Taylor explained that the area had not been examined on the ground, even that some parts of it had not been flown, and that the route had been changed, moving the pipeline to the south. 21517

Mr. Overstall used a quote from the NTSB report (Exhibit B92-3): “In the days following the accident, Enbridge and its contractors established about 33 oil spill containment-and-control points (from the release site to the west end of Morrow Lake in Kalamazoo County, covering about 38 miles of […] river.”

He asked if Enbridge was able to effectively capture submerged bitumen from those 33 control points, while it was being transported downstream. The third time he asked the question, Mr. Underhill replied: “I believe that we employed techniques that were effective. We were able to remove the bulk of the submerged or entrained oil. It is an issue that we’re still addressing in a more passive manner. 21595

Mr. Overstall asked, “So would you say that what you’ve just described is more of a recovery operation for submerged and sunken oil than the capture of submerged oil? Mr. Underhill conceded that there is a recovery component. 21611

Containment in winter

The discussion moved to capture and containment techniques and their limitations. Referring to Exhibit B83-16, Mr. Overstall asked about the effectiveness of containment techniques in winter, "especially in a large river, like the main stem of the Morice, that you will be dealing often with velocities of about 0.8 metres a second during the winter period, under ice?" 21649

Clore River

Mr. Overstall described the Clore River and its geographic context with respect to the pipeline. He then referred to a response by NGP in Exhibit B47-26, to an information request from Northwest Institute. "Based on a hypothetical full bore rupture [on the upper Burnie River] a theoretical spill would not reach the Skeena River estuary." He noted that NGP did not say how far down the Clore, the Lower Copper, and the Skeena the theoretical spill would proceed. 21728

He then asked which data and which model was this response based on. The discussion which followed is not enlightening or particularly productive. Interested readers should go to the transcript.

Mr. Overstall concluded at one point, "What you're telling me now is that, in fact, your answer with respect to oil spills reaching the Skeena River and how far they would go down is, in fact, based on speculation." 21786

Sutherland River

Mr. Overstall described the pipeline as crossing the headwaters of the Sutherland River, skirting just south of the park and protected areas, and depicted in Exhibit B74-4. "This river is the main rainbow trout spawning area for Babine Lake." 21818

The park management direction statement, presented as an AQ, states that the park "Protects the biologically exceptional meandering Sutherland River and associated floodplains and extensive wetlands, the only unmodified SBS DK floodplain in the province," contains various rare plant communities, and "contains provincially significant fish habitat." 21908

His questions examined the limited road access locations available to capture spilled oil that might enter the Sutherland River downstream from the pipeline location. The northernmost road, near Babine Lake, is deactivated. The southernmost road is about 8 km from the pipeline. There are no roads in between.

Mr. Overstall's questions hoped to discover evidence of detailed knowledge of the area and a plan based on that knowledge. Dr. Taylor said, "All right, Mr. Overstall, another spill scenario." "This is exactly the sort of thing that is done in the detailed planning," The transcript has recorded the details of the discussion, but essentially the fieldwork and spill response plans for the area have not been developed yet.

Examination by Ms. Joy Thorkelson for the United Fishermen and Allied Workers' Union 21994

Why will this pipeline not fail?

Ms. Thorkelson said that she'd like to talk about risk. She quoted Mr. Doering from the October 10 transcript (Vol 86), that "30 years or 50 years, or beyond, the condition of that pipeline [Northern Gateway] really will be the same as the condition as when it was first put into service." Then she quoted a passage from the Public Safety Qualitative Risk Assessment (Exhibit B69-3) relating to pipeline ruptures in older pipelines. Her question was, "Why weren't [these ruptured pipelines] maintained to what Mr. Doering said the pipeline would be kept in a safe operating condition throughout its life?" 21994

Mr. Kresic credits the change to modern designs and practices, and especially inspection technologies. Referring to NEB incident data, he said that none of the failures are from pipelines built in the last 25 years. 22010, 22038

Asked how they will keep Northern Gateway "in world-class state-of-the-art condition", Mr. Kresic replied, "We would continue to apply new technologies as they become available." 22040

Ms. Thorkelson identified some statements that they found to be confusing and contradictory from the October 18 (Vol 93) questioning by Kelly Marsh. The statements relate to return periods and probabilities, and their applicability to engineering or economic decisions. 22072

The discussion about statistical methods and applications can be followed in the transcript, beginning with Mr. Kresic at paragraph 22104

Landslides

Ms. Thorkelson put up "Flooding and Landslide Events Northern British Columbia 1820-2006" by D. Septer, Ministry of Environment as an AQ. Identifying a June 1990 landslide in Telkwa Pass that severed the Pacific Natural Gas (PNG) pipeline, she asked if a landslide this size would sever the Enbridge pipeline. Mr. Doering and Mr. Kresic replied, speaking about routing and monitoring and engineering. Mr. Doering said this is why they did not route NGP through Telkwa Pass. 22178

Ms. Thorkelson pointed to another landslide which ruptured the PNG at the Copper River. This one caused a fire. She asked if fire was a possibility with NGP. Later, Mr. Burgess answered the question: "The likelihood of a fire is less with a liquid pipeline than with a high pressure natural gas pipeline." 22219

Then a 2003 clay flow slide which also severed the PNG. Are these a risk for NGP? Mr. Doering said they have indentified a route that avoids marine clays and related slides. 22239

Ms. Thorkelson asked a number of times if the pipeline would survive a major slide, and the witnesses have not answered it. The Chairperson said the Panel would like to hear an answer to that question. Mr. Doering said only that circumstances are very different between a surface feature and a buried pipeline. 22280

Cleanup

Ms. Thorkelson said, “So I’m going to move on from this set of questioning; it seems fairly fruitless. And what I’d like to do is talk about cleanup.”
She asked about access to the pipeline or spill location during periods of flooding. Mr. Underhill said that “Accessing any point along the pipeline in the event of an emergency is very critical for us.” Contingency plans and alternate means are being looked at. 22346

Impacts on fisheries

Ms. Thorkelson asked a question about impacts on fish and fisheries. Following the responses, she said, “I am concerned in listening to the answers that I just received. I do want to discuss compensation measures and I want to discuss the fishing measures. owing the response, she said,”

This will be her first topic in the morning.