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JRP Hearing Notes

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Order of Appearances

Northern Gateway Panel 2

Marine Emergency Preparedness & Response

Mr. John Carruthers	Mr. Randy Belore	Mr. Jeffrey Green
Dr. Alan Maki	Mr. Owen McHugh	Mr. Greg Milne
Dr. Edward Owens	Dr. Walter Pearson	Dr. Jack Ruitenbeek
Dr. Malcolm Stephenson	Mr. John Thompson	Mr. Chris Wooley
Mr. Dennis Yee		

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Examination by Ms. Lisa Fong for Heiltsuk Tribal Council (continued)
15577

Heiltsuk interests in geographic response plans

Ms. Fong asked, "What percentage of the coastline surrounding the open water area is Northern Gateway [Pipelines] (NGP) including in its proposed geographic response plans?" Mr. McHugh replied that that "NGP has put forward as a commitment … the Confined Channel Assessment Area (CCAA) and focused along the shipping routes. There would be a small portion -- I can't give you a percent -- within the open water area." 15578

Ms. Fong: "Are you planning to include … the Heiltsuk territory?" Mr. McHugh reiterated the commitment. Ms. Fong asked, "Is it Northern Gateway's plan to incorporate all sites identified by First Nations into geographic response plans? Mr. McHugh said that there are multiple tools they've been looking at, including, "the environmental and operational atlases for the coast." He referred to the statement in Exhibit B164-13, Adobe 15 that priority sites need to be "responder orientated".

Who makes the decision if a site is a priority site?

Ms. Fong asked, "If there's disagreement within the group such as the First Nation who insists that the site is a priority but, for example, the other group such as perhaps government, disagreeing, who gets to make the decision as to what is a priority site and what stays on the list?" Dr. Edward Owens said that within the CCAA, "it'll then be up to working with the response organization and Northern Gateway to determine those sites. If it's a wider application within the province, the B.C. province would be responsible for site selection." 15623

Some discussion took place about the Province of BC's intentions with geographic response plans, whether it will implement them or something like it as part of its "world-leading regime for land-based spill response preparedness and response." [BC Govt website]

Will NGP pay for response planning and fishing studies?

Ms. Fong asked about funding. Will NGP "be the ones who pay for the response planning, the technical capacity and the capacity [for] First Nations groups to develop these geographic response plans?" Mr. McHugh replied, "If it's project specific and it's a commitment Northern Gateway has made, we will fund those programs." Later, Ms. Fong asked if NGP will fund the proposed harvest studies. Mr. Jeffrey Green said it would, within the CCAA. 15626

Ms. Fong put up a map of Heiltsuk territory [Exhibit D85-3-14, Adobe 13] and asked again "whether Heiltsuk territories would be covered in the geographic response plans." Mr. McHugh quoted from [Exhibit B164-13, Adobe 16], under "GRP Site Selection:" "The work[ing] group will evaluate sites from a risk of being oiled perspective." He said, "[The Heiltsuk] area is all outside of the CCAA; it's quite a bit south. … There may be harvesting … carried out outside. … Most of this territory … would probably fall in a wider industry initiative or a B.C. style initiative." 15642

Ms. Fong asked how confidentiality will be maintained with respect to fishing locations. Mr. McHugh replied that it is "fairly simplistic" to assign confidentiality to map layers. 15656

Ms. Fong asked, "At the time that Northern Gateway drafted this application that's before the Panel, did Northern Gateway have the expertise and the financial capacity to develop a detailed oil spill response plan that could be set out before that Panel? Mr. John Carruthers replied,"We did not have the detailed engineering available and we do not have funding from our partners to proceed until we have a decision." 15671

Ms. Fong asked a few questions about the Integrated Fisheries Management Plan (IFMP) in which DFO sets out the rules and areas for FSC fishing. These related to alternative sites for fishing, and Heiltsuk rates of consumption. Mr. Green said that he was generally aware but could not answer specific questions. 15694

Examination by Mr. Benjamin Ralston for Heiltsuk Tribal Council

15720

On seaweed, herring, clams, and mussels … and oil

Mr. Ralston surveyed the witnesses on the extent of its awareness of the significance of seaweed and herring, including spawn on kelp for the Heiltsuk. The Chairperson said this was not helpful and directed him to go to his questions. He asked, "Can anyone on this panel speak to the effects of an oil spill on clams?" 15720

Dr. Alan Maki said that clams were studied following the Exxon Valdez spill. "Generally, we don't see a major impact on them because they're in what we call the immediate subtidal area. When oil is deposited along shorelines following a spill, it's typically in a bathtub-ring type configuration where the oil is deposited at the high tide or the mid tide line and as the tide recedes, it leaves that deposit in that upper intertidal area. But the lower subtidal -- … the soft sand and mud that clams and mussels require -- is not usually impacted to a great degree by an oil spill." 15751

Mr. Ralston noted that blue mussels were studied [Exhibit B3-39, Adobe 19] and evidence about them being coated with oil. Dr. Maki said that "mussels are typically found attached to the rocks and the substrates. … Their feeding ecology requires that they be washed with fairly strong currents on a regular basis, and as a result of their particular niche that they occupy on these rocks, they are more susceptible to oiling." He said that clean-up attempts in Prince William Sound (PWS) failed, and they decided "to let natural cleaning and natural degradation occur." 15756

Dr. Maki said there is risk from hydrocarbons to clams in the larval stage when they are free swimming, but sampling of the water column in PWS confirmed that "the water column concentrations were below levels … that would affect aquatic life." 15767

Mr. Ralston noted that Heiltsuk Tribal Council has entered into a joint management plan that with Fisheries and Oceans Canada or DFO for the commercial harvest of manila clams, butter clams and little neck clams. He asked if NGP had assessed the potential costs if an oil spill were to result in closures to the clam fisheries. 15777

Mr. Green said that in the evidence they have not calculated costs, and said, "We talk about the five different clam fisheries. We talk generally about the types of effects that occurred, not only to clams but to invertebrates in general, and then as you've shown we've looked at mussels and Dungeness crab as the two sorts of more representative species that look at a range of effects could -- that could occur to those two specific indicators." 15782

Asked if NGP is aware of the costs of closures to commercial fisheries from the Exxon Valdez spill, Dr. Maki said it was approx. $300 million. Mr. Green said that in Vol 8C, Table 11-3, "we actually talk about a range of closures that have occurred around the world. Gov't of Canada would implement closures. Compensation would be determined. Table 8-1 is summary of effects on marine biota and terrestrial wildlife. 15786

Mr. Ralston asked if NGP was aware "of the number of members from the coastal First Nations that are situated adjacent to the open water area who are employed by commercial fishing operations." "Is NGP aware that commercial fishing remains the largest non-government employer for Heiltsuk?" Mr. John Thompson replied, "For Heiltsuk and for most other coastal First Nations." 15800

Compensation

Mr. Ralston mentioned fishery development and joint management programs that DFO and First Nations are involved in. These would be affected by a spill. He asked whether there would be compensation within "the three tiered compensation regime" (which is ship owner's insurance, Ship Sourced Oil Pollution Fund (SOPF), and the International Oil Pollution Compensation Fund (IOPC) for impacts on the ability of a coastal First Nation to engage in these programs. The discussion continues in the transcript from paragraph 15816.

Mr. Ralston said, "There does not appear to be compensation for the loss of culture in terms of the loss of distinctive traditions and knowledge." Mr. Jack Ruitenbeek said, "That's generally correct. … It's only the economic losses which have some possibility of quantification that can be covered." Dr. Ruitenbeek talked about the valuation of culture, and said, "I've been involved with a number of these compensation regimes and people prefer different reasons for saying why culture should or should not be compensable or should or should not be included in compensation." 15842

Mr. Ralston said that there are "culturally integral species" for First Nations that are not harvested – he cited the killer whale – and asked if that were compensable. Dr. Ruitenbeek said, "There is no monetary compensation available for that." 15859.

Impact of oil spill on Aboriginal rights and title

Referring to [Exhibit B38-2, Adobe 6], Mr. Ralston said, "Here NGP states that an oil spill will not affect a First Nation's rights and title per se. An oil spill may, however, affect First Nations' exercise of rights and use of lands and water over which they may be able to establish rights and title. … Is it Northern Gateway's evidence that an oil spill cannot have an impact on a First Nation's ability to establish claims to rights and title?" Mr. Green replied, "It's not really the responsibility or purview of NGP to be addressing title. That's something very specifically between the Aboriginal group and the Government of Canada." 15875

Mr. Langen raised an objection to the line of questioning inasmuch as it sought the witnesses opinions on legal matters relating to rights and title. The Chairperson got involved, and restricted Mr. Ralston's question to non-legal matters. 15883

Mr. Ralston asked, "If an oil spill affects the dating or the ability to date pre-contact resources, does the current insurance and international fund regime provide any compensation to First Nations for the loss of this ability to date and identify these pre-contact resources?" Mr. Chris Wooley referred Mr. Ralston to his testimony on the previous hearing day [Transcript Vol 143, Para 15095], in which he stated that there would be no effect on radiocarbon dating. Dr. Ruitenbeek said, with respect to compensation, that he was not aware of "anything that remotely looks like that type of a claim. It's neither excluded nor included explicitly in the claims manuals." 15943

Examination by Ms. Carrie Humchitt for Heiltsuk Tribal Council (continued) 15991

The Chairperson began by advising Ms. Humchitt that "I had understood when you finished on Saturday that you had completed your questioning. And it's highly unusual to come back and have someone re-question a panel afterwards." She allowed Ms. Humchitt to continue with her questions, but monitored her closely. The witnesses responded to most of her questions, that they had already answered the question earlier.

Ms. Humchitt asked, "If there was a shortfall in the coverages under the IOPC regimes would NGP be amenable to purchasing stand-alone insurance to cover for any shortfall?" Mr. Carruthers reiterated that the liability is with the ship owner, not NGP.

Examination by Mr. Ken Maitland, Mr. Dennis Horwood and Mr. Walter Thorne for Kitimat Valley Naturalists 16110

Questions about fate of hydrocarbons

Mr. Maitland noted from [Exhibit B3-22, Adobe 21], "Properties and Fate of Hydrocarbons," that wind tunnel evaporation tests were done at 20 degrees Celsius and 3

metres per second. Mr. Randy Belore confirmed this after some discussion. Mr. Maitland asked, "Why present data at temperatures that Kitimat never receives? The average temperature is about 15 in the summer." Mr. Belore said that Exhibit B16-31 described "a process for evaporation of the oils to establish parameters … used in an oil spill model that then allow us to predict evaporation. … In all the modelling … for the project, we do use different temperatures." 16131

Mr. Maitland asked why wind tunnel tests leave samples in for two days and two weeks, and are representative of three to four hours and one day at sea, respectively. Mr. Belore said that this is "a pretty widespread industry practice." With condensate, the comparative wind tunnel durations are one and one half hours and six hours because of the increased evaporation. 16142

Mr. Belore said in reply to a question that the pipeline would ship "a range of products that met the pipeline tariff. … It could be diluted bitumen with condensate or other diluents, synthetic lighter crude oils." Mr. Maitland asked if the chemical property data is available for bitumen diluted with condensate. Mr. Belore said, "There is a fairly wide properties database on a site called CrudeMonitor.com for physical properties and some chemical constituents." 16165

Mr. Maitland asked, "Would it be reasonable to make the assumption that with a condensate diluted bitumen that the benzene level would jump from 280 to over 2,800 parts per million?" Dr. Malcolm Stephenson replied, "The benzene concentration would be higher than 280."

Spilled condensate is not recoverable

Table 4-2, "Hydrocarbon Evaporation Estimates for Spill Examples" [Exhibit B3-22] shows that more than 50% of condensate evaporates in the first six hours. Mr. Maitland asked if "this leaves 49 percent dispersed into the water column?" Mr. Belore agreed. Mr. Maitland asked, "How effective are your clean-up techniques for removing hydrocarbons and BTEX and PAHs from the water column?" Dr. Owens said, "Recovery of condensate actually increases the safety risk. We typically do not respond to condensates. The oil that disperses is not available for recovery; it's not recoverable oil and that that evaporates is also not recoverable oil." Mr. Belore added that some condensate may be onshore.16175

Mr. Maitland noted from Adobe 39 [Exhibit B16-31], the statement that the two diluted bitumen oils - Cold Lake bitumen diluted with condensate and MacKay heavy bitumen diluted with synthetic light oil – "exhibit a similar long-term fate," and that only MacKay Heavy synbit was included in the final detailed assessment. He asked that this be explained, given that Tables 3-3 and 3-4, the "Spill-Related Properties" for the two products, have distinct property differences. Mr. Belore said that the behaviour of these oils in terms of evaporative loss, change in density, change in viscosity, emulsion formation tendency, is similar, so they are similar in terms of "a spill response situation and from an environmental impact assessment." 16192

Mr. Horwood quoted from Exhibit B3-22 that "Observations of eelgrass after a release suggest vegetative growth may recover rapidly after initial loss of shoots..." The authority

for that may be “Wright 2002”. He reads a quote from Wright, which is not in the NGP evidence, that “Oil spills pose serious threats to eelgrass communities growing in sheltered bays that are poorly flushed [...] the areas will [...] [remain chronically contaminated.” He asked, “does this not suggest that your statement of a quick recovery … is, at minimum, somewhat suspect?” Mr. Green’s said that the evidence did note that oil may persist in sheltered habitats. 16212

Mr. Thorne asked about the use of exclusion booms to protect eelgrass beds. Dr. Owens described “shore seal booms” which have bottom chambers which are filled with water, and a top chamber filled with air. The boom forms a seal with the sea bottom and is, “very effective.” He said, “Exclusion booming is a tactic. It’s how we exclude oil from a particular area. The booms themselves can be any number of different types, whether the floating type with skirts or the shore seal boom which is designed for intertidal and shallow areas.” Discussion continued on the effect of currents. Dr. Maki said that with the Deepwater Horizon spill, they sometimes needed to anchor booms with rebar and weighted anchors. 16262

Mr.Thorne said that based on what the witnesses have said about keeping oil out of sensitive areas, “it sounds like you’re saying that you don’t know if this will work.” Dr. Owens replied, “We do know that the tools that we have will work. … It’s not the boom itself. It’s the responders, their skill and their experience to match the equipment that they have to the environmental conditions.” 16290

Using the entrance to Foch Lagoon as an example of a location where strong tidal currents are typical, Mr. Thorne asked how they can be boomed effectively. Dr. Owens said that they place the booms on the outside or inside of the constricted areas. 16312

Black oystercatcher: a key indicator species but nowhere to be seen

Mr. Horwood asked about the decision to include black oystercatchers as one of the four bird species used to represent baseline conditions for birds. Referring to Table 4-3 in the Marine Technical Data Report (TDR) on Marine Birds [Exhibit B9-16, Adobe 38], he asked giw many black oystercatchers were seen on field surveys in 2006 and 2009. Mr. Green said, “It says zero.” Mr. Horwood: “Can you explain why the black oystercatcher was selected when your survey showed it was among the least observed in the PEAA and not present at all in Douglas Channel?” Mr. Green said, “There’s three different parameters listed in the text … they occur in large numbers, are sensitive to changes in the environment and have important functions in the marine ecosystem”. So it’s not just one factor it’s three factors that are being looked at.

Mr. Horwood noted that on Adobe 14, a book by him (Horwood 1992) is cited as the authority for a list of birds in the Kitimat River Estuary. He said, “In that book there’s no reference to black oystercatcher, yet your page refers to me saying it was there.” He asked that the record note the inaccuracy.

He then asked, “Hving demonstrated the black oystercatcher is not present in the Duglas Channel area would it not be suitable to have an undertaking to select a more

representative shorebird?" Mr. Green: "o do an effects assessment on a different shorebird is not going to lead us to a different result." 16384

Mr. Thorne followed with some questions about marbled murrelets, confirming with the witnesses that "over 400 marbled murrelets were observed within Foch and Gilttoyees Inlet," and as alcids and sensitive, they are a species of concern, and likely to suffer heavily from an oil spill." 16411

BTEX compounds and toxicity

Exhibit E9-19-13

Dr. Stephenson explained toxicity benchmarks, in particular acute toxicity benchmarks for aquatic species. He explained the fate of different chemicals – both dissolution in water and volatilization in air. Dr. Maki mentioned learning's from Deepwater Horizon.

Mr. Maitland asked about the public availability of environmental monitoring data in the case of a spill. Mr. Milne responded saying that the raw data may not be publicly released, but NGP will work with public agencies to communicated condition to the public. 16525

Marine Bird Hazing (keeping birds away)

Mr. Milne described bird hazing techniques, pyrotechnics, cannons, and visual tools.

Mr. Horwood raised two issues: the danger of using pyrotechnics and sparks when a vapour cloud could be present, and that some birds respond differently to loud noise. Some fly, while others dive. 16533

Mr. Milne responded that NGP would like the Canadian Wildlife Service and others to develop a marine bird protection plan which might feed into geographic response plans. (Exhibit B3-40, section 884). NGP would rely on input from experts to develop the "very site-specific" hazing plans, and they would tap into their expertise very rapidly. 16535

Response Times for Oiled Marine Birds Rehabilitation

Mr. Horwood: How rapid will an oil spill response team be onsite for cleaning birds? Mr. Milne: NGP will have resources for initial response for oil wildlife at Kitimat and the response time is dependent on the scenario. 16553

Survival Rate for Oil Soaked Birds

Mr. Horwood asked about the survival rate of oil soaked birds.16561 He made the claim of a survival rate of around 1%. 16567

Dr. Maki: Agreed that it is possible in particular bay or estuarythat was subject to heavy oiling, where you could have a fairly high percentage in that order. 16568
And in the case of the Exxon-Valdez spill, the overall mortality index was 10-25 percent.

Mr. Green added, "we assume that the effects on marine birds are adverse and they could be significant given the right conditions of the spill." 16571

Mr. Horwood asked for clarrifciation on who decides what is appropriate in the case of follow up and monitoring.

Mr. Green: NGP *intends* to develop "background information" (aka baseline information) on densities and seasonal changes for different types on a habitat basis. They won't map the entire confined channel, but intend to have "replicates" so they can make predictions on what the baseline populations would look like. 16576

Spill responses capacity at the terminal given a bad scenario 16582

B3-22, section 9

Mr. Thorne asked about the NGP's confidence of an effective 3 hour response for a spill in a particular scenario: nighttime, with a southerly gale, on a flood tide. 16598

Mr. McHugh is very confident that under most scenarios, NGP would have very successful initial containment recovery. As well, that there could be times when NGP may choose to stop loading because an operational limit for a component of the safety system (booms) was exceeded. 16599

Mr. McHugh then states that they will plan for a three hour response. And, "the conditions at the time of the spill would determine the success as well". 16605

An exchange about tides. 16607 to 16614

An exchange about what is "north end of the channel". 16619 to 16634

An exchange about the ranking of sensitive areas. 16650 to 16667

Overview of Effects of Hydrocarbons on Marine Biota

Dr. Maki stated that differentiated effects between individual and the population. "There's absolutely no doubt that oil spills can be devastating to individual birds on the surface of the water. However, (…) although these (individual) mortalities are significant at the time it doesn't affect the long-term population balance.

Mr. Thorne, succinctly summed up with, "But those birds are permanently dead."

Parties did agree that the wintering population of twenty Blue Herons in the Kitimat Arm is at risk to a spill. There was no agreement whether there would total population demise. 16692

Missing habitat information and ability to respond

Mr. Horwood sought clarification on the specifics of where a yellow-billed loon was sighted. He was making a point that information on specific species (37 species in total, line 16696) is missing from the application. 16725

Mr. Green stated: NGP's application contains a summary of the marine habitat and is not to be inclusive of all information. Specifically, Volume 8C says, "A list of the marine bird species most likely to be found in the [open water area]…". 16730

Mr. Horwood questioned: How could a credible spill response plan be developed if the fate modelling didn't include the condensate diluted bitumen and a full understanding of the environment into which the spill would occur? 16733

Mr Green responded: NGP is committed to update and enhance the existing environmental sensitivity atlases after operation have begun. 16734 – 16737

Mr McHugh responded: We have done sufficient work to determine the environmental effects associated with spills, for the EA stage… We know there can be significant adverse affects associated with spills under the right conditions, in the right time, in the right location. However, we've don't need additional modeling at this point. This will not be the first time an organization will develop a detailed plan and [NGP] has the benefit of being a modern organization. 16739 -16742

Examination by Joy Thorkelson for United Fisherman and Allied Workers Union..16746

Nestucca Oil Spill

Mr. Green: Spill modelling was used to "demonstrate what could happen in the event of a very specific scenario'. 16757

"…as time goes forward, these models become less accurate… because there's many things influencing how a spill work. In a real-time situation, these trajectory models are typically run at very frequent intervals to predicts very shore term behaviour of a spill, but in this case, we're running it out sometimes – I believe up to 14 or 15 days and trying to predict." 16760

Ms. Thorkelson compared NGP's modelling of a hypothetical oil spill (10,000 barrels) to a similar sized real-live spill – the Nestucca Spill (5,500 barrels).

The Nestucca Spill – location: Washington State – resulted when a barge was hit by its escort tug. The oil formed tar balls that moved below the water surface [because of wave overwash] and could not be visually tracked. 16786 Stranded oil was found on the north end of Vancouver Island, 325 km from the source. 16802 & 16814

Ms. Thorkelson noted the difference of NGP's model and the Nestucca oil spill regarding the distance travelled of spilled oil.

Mr McHugh: Did not dispute the difference in spatial coverage and justified NGP's modelling. "It's very site-specific and depend on currents and tides, but in general, it's hard to compare the two areas." 16809

Inability to track submerged oil during Nestucca Spill

Dr. Owens: "When I was there in the first week in January flying conditions were not optimal shall we say, to spend any time out in the open ocean. I know in Vancouver Island we only had a single engine helicopter and that was a safety issue, about not being able to go off shore. Very different situation today I might add with the Canadian Coast Guard surveillance aircraft that's permanently stationed on the west coast." 16830

Dilbit sinking from weathering alone? Submersion vs Sinking

Mr. Thorkelson and the witnesses go back and forth on sinking oil versus oil that is submerged. [Exhibit B16-31, Adobe page 30]. 16831 to 16909

Dr. Stephenson: Observations have been made that a neutrally submerged oil blob can separate into a sunken blob and a floating blob. 16936 It's physical process and not a chemical process. 16941

NGP described the migration of a large sediment particle downward in oil globules. When the sediment reaches the bottom, the top portion pulls apart and floats. The remaining bottom portion of the oil globule containing the sediment sinks. 16943

Currents transporting floating oil into low salinity water? & "density fronts"

Ms. Thorkelson asked if oil floating in salt water was brought by currents into areas of low salinity, would it sink? 16957

Dr. Owens claimed that the outflow of the river acts a "very strong, natural barrier". The density difference between fresh water and seawater acts a natural boom, called a density front. This density front prevents the oil being carried up into the sensitive waters of the river.

Mr. Belore and Dr. Owens reiterated their stance that oil that is spilled into more dense seawater and becomes emulsified, will not cross over the density front into the freshwater portion of the water mass. They have seen this behaviour "everywhere". 16973 to 16990

Sedimentation of oil on beaches and then lateral spreading into subtidal zones

Ms. Thorkelson asked about the possibility of the lateral spreading of bitumen into subtidal zones. Similar to the action that was observed of the Bunker C during the Nestucca Oil Spill. 16996, 17016, 17023

Dr. Owens generally agreed that it is possible for oil to come into contact with beach and then go into the adjacent near shore subtidal zone. What mattered was not the oil type, but the geography. Due to the compartmentalisation of the BC coast into small pocket bays and bedrock headlands, he thought this would give "them" the potential to go after the oil. 17024

Ms. Thorkelson then suggested that the North Beach on the northern end of Haida Gwaii appears to be closer to the west coast of Vancouver.

Dr. Owens agreed. 17026, 17027