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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
Mr. Jon Moore	Dr. Edward Owens	Dr. Walter Pearson
Dr. Jack Ruitenbeek	Dr. Malcolm Stephenson	Mr. John Thompson
Mr. Chris Wooley		

Examination by Ms. Cheryl Brown for Douglas Channel Watch (continued) 7565
Examination by Ms. Rosanne Kyle for Gitxaala Nation 7988

Examination by Ms. Cheryl Brown for Douglas Channel Watch (continued) 7565

Human health aspects of a spill

Ms. Brown picked up from where she left off on the previous hearing day, talking about inhalation as one of the human health pathways for condensate. She asked if that were the same for dilbit and synbit. Mr. Greg Milne said, “Generally speaking, that would be the case.” Ms. Brown: “How does that affect your response time?” Mr. Milne replied that “The particular pathways of a risk are worked into response protocols. It doesn't affect the response time.” 7565

Ms. Brown presented a scenario of a spill at the terminal reaching Kitimaat Village in about three hours. “Inhalation would still be a factor. ... How would ... the public be impacted?” Mr. Milne quoted from the General Oil Spill Response Plan (GOSRP) [[Exhibit B21-2](#), Adobe 55], that the response would depend on the information available about the spill, various factors – type of hydrocarbon, current, weather forecasts – would be considered. Air monitoring would assess potential for breathing hazards. Depending on the scenario, appropriate protective equipment would be required, up to and including evacuations. 7576

Ms. Brown referred to a statement in the GOSRP that workers must suspend any operation that is dangerous to life or health. Mr. Milne said it is correct for specific operations, but “it should not be interpreted to say that the overall response would be suspended.” 7585

Ms. Brown asked if there are studies in the evidence specifically about human health issues. Mr. Owen McHugh mentioned the vapour cloud analysis as part of TERMPOL [[Exhibit B23-42](#)], which looked at very large condensate spills, which they considered to have “the highest volatilization rate of the three oils.” The study was not from a human health standpoint, but was concerned with “danger type criteria for explosion, fire, those types of risks.” 7597

Evidence relating to human health and marine spills

Ms. Brown asked whether there was anything in evidence relating to human health and marine spills. Following a turbulent and abortive discussion with Mr. Milne and Mr. Dennis Langen, Dr. Malcolm Stephenson put up [Exhibit B3-22](#), Adobe 139, Section 10.3 “Human Health Risk Assessment.” 7645

Dr. Stephenson said, “In ... risk assessment, we consider two factors, acute ... and chronic health risks. In ... the marine environment, our focus was on the long-term health risks to members of the public that would be associated with the aftermath of an oil spill. The primary pathway for human exposure in that context would be accumulation of PAHs by organisms such as shellfish, which do tend to accumulate PAHs and other hydrocarbons. And the potential exposure route for humans for those organisms would be the ingestion or consumption pathway. That was the core of the human exposure assessment that was done for that chronic or lifetime exposure model.” 7647

Ms. Brown attempted to explore the human health effects of benzene in a spill, but eventually abandoned the question. 7650

Ms. Brown asked about the response in the scenario in which a spill at the terminal reaches the shoreline of Kitimaat Village. Mr. McHugh said that technically the response at the terminal would be immediate because “it would be pre-boomed.” Mr. Milne said that condensate would evaporate before reaching the village, but that dilbit would get to the village in winter. 7701

Ms. Brown persisted: if it did happen, and was unmitigated, what percent of the oil would be recovered? Mr. McHugh declined to answer the question because “we will have those mitigations in place.”

Containment boom for sensitive areas and the estuary

Ms. Brown asked how they would get containment booms around sensitive areas with a terminal spill, given only three hours for the oil to reach the village. Dr. Owens said there would be “geographic response plans ... designed to deal with sensitive areas.” But, “the key thing is that the vessel will be boomed off.” “Containment at source is the primary response.” 7720

Ms. Brown: how would you “containment boom the estuary?” Mr. McHugh described as an example, Duck Flats in Valdez, Alaska, where boom connectors connected to pilings and other pieces of infrastructure, allowing for rapid deployment of booms.

Boom limits and wave height

Ms. Brown asked about the parameters of booms around the tanker, with respect to wind and waves. Mr. McHugh said they were custom built for the site and appropriate for the operating environment. Pushed for specifics by Ms. Brown, he cited [Exhibit B17-18](#), Adobe 20. Records at the Nanakwa Shoal in Douglas Channel show exceedence above 2 metres is less than 0.00 percent, and maximum duration is one hour. “Very rare events,” he said. Ms. Brown: “So your design standard would be 2 metres?” Mr. McHugh: “We haven't selected the design standard at this point.” Ms. Brown: “So you're saying you don't know the parameters of the booms at this point?” Mr. McHugh: “We would shut down if the conditions were considered unsafe.” 7804

Ms. Brown asked whether NGP would consider doing a gap analysis to see when operations would have to be shut down. Mr. McHugh replied that they answered this in the past and they have done enough analysis at this point and have “a commitment to do an operational analysis for the appropriate conditions for the various components of the project.” 7834

Ms. Brown asked who has responsibility for a spill at the terminal. “The difference between a tanker incident and a terminal incident sounds to be a very fine line.” Mr. McHugh replied, “The response is immediate and the rest would be determined through the later processes.”

In situ burning at the terminal, or on land

Ms. Brown: would in situ burning be applied at the terminal? Dr. Owens: “The primary strategy in and adjacent to the terminal area would be mechanical recovery; containment and then removal of the oil using mechanical systems, skimmers and pumps and storage units. It would be, I think, a very unlikely situation when we would not have the capacity to deal with that.” “In the rare event ... one would [use] a ‘teardrop boom’, contain oil, move it into a central part of the channel away from the terminal population and ... have a controlled burn at that location.” 7840

Ms. Brown asked about in situ burning on land, if the estuary were fouled. Dr. Owens said it would be rare, but possible, and it has been done. 7853

Ms. Brown noted from [Exhibit B3-22](#), Adobe 103 that NGP acknowledges the stress that a spill would create in a community. Mr. John Thompson said, “The human health assessment [that] was done, really, only focused on the physical pathways by which health would be affected. He did not agree with Ms. Brown’s question whether the stress can cause serious mental health issues. 7865

Ms. Brown asked, “How do you quantify the social costs and the recreational costs [of a spill]?” Dr. Jack Ruitenbeek replied, “There are fairly strict and standard procedures in claims manuals.” “There are always unquantifiable aspects.” Ms. Brown asked more questions about these unquantifiable aspects – mental health, for example. 7894

Ms. Brown referred to [Exhibit B83-2](#), Adobe 15 in which Northern Gateway agrees that “data describing the physical properties, weathering and chemical distributions of hydrocarbon products are valuable,” that “this initiative would benefit all industry and therefore may be more appropriately applied through a standardized industry procedure,” and NGP agrees to engage industry partners post-approval to examine a potential system to meet the EC recommendation. Mr. McHugh reiterates, “It sounds as though Northern Gateway is not willing to take the lead in this process.” He referred to Figure 2-1, the “Proposed Scientific Advisory Committee Management and Facilitation Structure” [[Exhibit B164-13](#), Adobe 13] to describe how that process might work. Ms. Brown asked if there were minutes of NGP’s meetings with EC. Mr. McHugh said there are minutes, that EC had asked that they be filed, but he wasn’t sure how that would happen. 7919

Ms. Brown asked about the tanks at the terminal in the event of a seismic event. Mr. Langen and the Chairperson advised her that this had been discussed at previous panels, but Mr. Milne said the tanks will be designed appropriately for those risks and appropriate containment will be in place. The risk of “a tank creating a marine spill is very low.” Mr. John Carruthers added that all of the emergency response resources will be available. 7947

Examination by Ms. Rosanne Kyle for Gitxaala Nation 7988

NGP’s 6 to 12 hour response time commitment

Ms. Kyle asked if the 6 to 12 hour commitment to be on site of an oil spill is a regulatory requirement. Mr. McHugh said, “It is above the regulatory requirement.” “It is a response-planning standard, ... it’s a design. It’s not a performance standard.” 7993

Ms. Kyle asked if the confined channel assessment area (CCAA) and the 6-12 hour response area, are the same. Mr. McHugh put up a map, “Areas of Focused Marine Response” [Exhibit B41-16] showing the 6 and 12 hour perimeters from response bases. Ms. Kyle: “We don’t yet know what the primary or enhanced areas of response will be; correct?” Mr. McHugh: “Correct. Transport Canada will set those.” 8008



Is the 6 to 12 response time a regulated limit?

Ms. Kyle said, “Whatever this area may be where the 6 to 12-hour response time goal will be set -- Northern Gateway will set that out in contractual arrangements with a response organization. Is that correct?” Mr. McHugh replied that these would be reviewed by regulatory authorities and “what’s in that plan then becomes what is the response planning standards for the project.” Ms. Kyle: “We don’t have that plan yet; correct?” Mr. McHugh: “Those plans are to be developed.” Ms. Kyle: “So we don’t know what the specific response planning standards will be.” 8030

This discussion continues for some time in the transcript. Ms. Kyle hoped to obtain a precise statement of what the 6-12 hour response goal entails, and particularly if it will be a regulated requirement, with penalties if is not met. Read from 8030.

Ms. Kyle said, “You told me earlier that the 6 to 12-hour response goal would not be a condition to the CPCN. So that there would be no regulatory consequence, like a fine, for example, if that 6 to 12-hour goal was not met.” Mr. Langen intervened, “Sorry, Madam Chair, I don’t believe that was Mr. McHugh’s evidence. I believe his evidence was a guarantee would not be part of the conditions, but a design standard would be.” Ms. Kyle: “Is that correct, Mr. McHugh, that a design standard would be a condition that Northern Gateway would agree to in the CPCN?” Mr. McHugh: “Yes.” 8044

Ms. Kyle asked, “What precise design standard is Northern Gateway saying it’s prepared to agree to as a condition of the CPCN?” Mr. McHugh replied, “The 36,000 cubic metre response ... based on ... recovery in 10 days.” Ms. Kyle asked for confirmation that NGP is not agreeing to the 6 to 12-hour response time goal as a condition of the CPCN. Mr. McHugh said, “No one could agree to that.” 8048

Mr. McHugh read from Transport Canada’s Response Planning Standards: “The standards are intended to be used in the planning process ... the standards should not be

used as a yardstick ... They seek to ensure that a suitable response infrastructure is in place and ready to be deployed.” 8052

Ms. Kyle: “If a response organization is not at the scene of an oil spill within 6 to 12 hours, there would not be any regulatory consequences, such as fines or charges, to Northern Gateway. Is that correct?” Mr. McHugh: “I don’t think it’s appropriate for me to speak on behalf of the regulators.” 8073

Liability for marine spills

Ms. Kyle moved away from the 6 to 12 hour response question to ask whether NGP is assuming any liability for a marine oil spill. Mr. Carruthers said, “The liability for a spill in the marine environment is well developed through both national and international programs and it is the polluter who pays. And it’s been deemed that the ship owner is the polluter for a marine incident. That takes out any argument about whose fault it is.” 8080

Returning to the 6 to 12 hour question, Ms. Kyle asked if the goal was “actually having recovery strategies deployed within 6 to 12 hours.” Mr. McHugh replied, “As long as it’s safe and the conditions are appropriate to do that, that would be the goal.” 8110

Three mechanisms of recovery, plus monitoring

Ms. Kyle said her understanding is that there are four response mechanisms when oil is on the water: booming, skimming, dispersants and in situ burning. Mr. McHugh replied that those are actually three, that booming and skimming are a single component. He added monitoring as a fourth. 8118

Ms. Kyle explored some aspects of booming, anticipating that oil would spread, eventually over a large enough area that it became unfeasible. Mr. Randy Belore explained that it will depend on the oil properties, that for more persistent oils booming operations could last for extended periods. It does not spread to a thin sheen, but remains as more persistent homogeneous patches of oil. 8148

Ms. Kyle also asked about the effects of wind and waves on spilled oil, on oil entrained in the water column, and on the limits of effectiveness of booming. She proposed a scenario in which oil was at three metres depth. Mr. Belore said there are skirts for booms for that depth, but that would not be a typical case because the oil does float. Ms. Kyle proposed a scenario in which the oil was submerged at 20 metres. Mr. Belore said the conditions would need to be so severe that you could not operate or boom. He said it’s a questionable scenario. 8178

Examining the claim that this oil will not sink

Ms. Kyle asked if “the recovery strategies that NGP is proposing ... are all premised on the assumption that the oil will float.” Dr. Owens agreed, with the one exception where oil makes contact with shoreline sediments. Mr. McHugh added, “We don’t know of any physical process that will make this oil just sink.” Ms. Kyle: “It all depends on the density of the oil, correct?” Mr. McHugh: “This isn’t an assumption.” 8228

The ways response plans can go awry

Ms. Kyle said, she wanted to talk about some of the things that can inhibit a successful recovery operation of spilled oil. “For example, skimmers may not work effectively on emulsified oil because the oil can clog the skimmer equipment; is that correct?” Dr. Owens: “That is not correct.” He explained it’s a function of having the right skimmer for the circumstances. Ms. Kyle said, “There are situations in which dispersants cannot be used or used effectively; is that correct?” Dr. Owens: “That’s true for every single technique. ... That’s why there exists, in everybody’s response organization, a wide arsenal of tools that are appropriate for different situations.” Ms. Kyle: “You can’t do in situ burning unless the oil is at least 2 mm thick; is that correct?” Mr. McHugh replied, “You can collect the oil using fire boom into a thickness that’s greater than 2 mm.” 8242

Ms. Kyle presented a number of other scenarios in discussion from paragraph 8274.

Ships passing in the night

Ms. Kyle asked whether tankers would be transiting the CCAA 24 hours a day. Mr. McHugh replied, “They are very capable of operating in the dark.” Ms. Kyle explored the considerations for response teams arriving after dark. Dr. Owens said, “It’s more difficult to work at night and less safe sometimes to work at night. But we do work at night. 8296

Ms. Kyle asked about the constraints involved with responding to an oil spill at night. Mr. McHugh said that Western Canada currently has 24 hour capabilities. Ms. Kyle replied that NGP doesn’t have plans to contract with Western Canada. Mr. McHugh said, “We have left it open.” 8336

In this discussion, Ms. Kyle mentioned various techniques, including forward-looking infrared radar and tracking buoys. Mr. McHugh said, “We’re talking about initial containment and recovery at or near spill source. You’re dealing with a very different response than tracking oil that has eluded the initial containment or response. So especially for night operations at source, containment recovery is less affected by darkness with appropriate lighting and protection of human safety.” 8345

Ms. Kyle asked if NGP is prepared to commit as a condition of project approval that the response organization have these technologies to locate spilled oil at night. Mr. McHugh replied that “There’s no need to make commitments for individual specific pieces. ... We would say ... our response organization will be capable of 24-hour response.” 8356

Ms. Kyle said, “There’s a difference, I think, between 24-hour response and 24-hour recovery,” and asked if NGP’s commitment was for 24-hour recovery of oil. Mr. McHugh said, Western Canada’s capability is for 24-hour recovery. “Recovery ... is one part of response.” Discussion continued and should be read in the transcript. 8359

Two sides of the coin: having the capability vs is it practical to do

Eventually, Ms. Kyle said, “It’s two sides of the coin, isn’t it?”. There’s what’s theoretically possible and there’s what’s practical in the particular circumstances. Dr. Owens agreed: “Safety and practicality are the drivers.” Discussion continued on this question. 8387

Fog

Ms. Kyle asked if dense fog would make it not possible to implement recovery strategies. Mr. McHugh said, “No, ... if you're talking about initial source control and containment.” Ms. Kyle: “Will it be part of the response standard to be able to recover oil in dense fog in the CCAA?” Mr. McHugh: “You do not go to this level of specificity within a response planning standard, they're principle-based. You would never put a line in there to say, under dense fog, etc.” Ms. Kyle asked if dense fog could constrain the ability of the response organization to recover oil in the CCAA. Mr. McHugh replied, “If you're talking about initial source control, if you have dense fog, you have low winds, which means that you have minimal movement of the oil. ... You may have very effective recovery in a fog conditions based on the environmental conditions that are typically associated with fog. If you want to talk about a larger area ... if you can't track the oil effectively, it can be challenge to recover it then. So there's two very different response operations that could be occurring at the same time.” 8414

Mr. McHugh asked for [Exhibit E9-19-13](#), entitled “Response Organization Standards,” because, “it may be helpful to have a quick look at some of the content.” Ms. Kyle said, “That's an invitation for me to go back over some of those questions.” Continued in the transcript. 8434

Oil recovery from the Exxon Valdez & Deepwater Horizon

Ms. Kyle said, with reference to the Exxon Valdez spill, “My understanding is that through skimming and burning, between 7 to 10 percent of the spilled oil was recovered. Would you agree with that?” Dr. Alan Maki said “The number is indeed correct but it is as of April 30th, 1989, just a month after the spill. There was additional recovery that did occur after that time. Dr. Owens said, “Burning was an almost negligible component of that; there was only one burn that was conducted.” Ms. Kyle: “So it's primarily skimming?” Dr. Owens: “Correct.” 8492

In reply to Ms. Kyle’s subsequent questions, Dr. Maki said, “Later on in the summer the task force, cleaning stranded oil from the shorelines, did indeed remove additional oil which was then subsequently skimmed and picked from the surfaces it was washed off.”

Ms. Kyle stated that the recovery rate associated with the Deepwater Horizon spill was in the 8% range for mechanical techniques – skimming and burning. Dr. Owens said that number is a percentage of all the oil released, of which a proportion was taken straight into barges on the surface, without entering the water column. Oil into the water column was dispersed naturally. Oil was treated with dispersants in the water column, and that reduced the volume that was spilled to a much smaller volume, which was the recoverable oil volume. So that 8 percent is volume of oil spilled not volume of recoverable oil. 8518

As an aid to questioning (AQ64), Ms. Kyle put up an “[Oil Budget Calculator](#)” which “was created during the Deepwater Horizon incident to try to help determine what had happened to the oil that was released from the Deepwater Horizon.” She described a chart which shows Best, Expected, and Worst Case estimates of recovery. The Best Case scenario is for 4% recovery from skimming, 6% from burning, and 29% from chemical

dispersants. The Expected Case is for 3%, 5%, and 16% respectively. She asked if NGP had taken into account a range of 8% success with mechanical recovery. Dr. Owen began his reply by noting that in the Best Case, 69% of the oil was taken up by direct recovery, naturally dispersed, evaporated or dissolved, or chemically dispersed. He said, “So 70% of the oil was not recoverable. It had already been taken care of.” [Note: the correct figure is 79%, not 69%] 8523

Dr. Owen said, “The 4 percent of the total volume, is a relatively small number, but in the context of the overall picture, it was a significant contribution after all the other natural processes or defined strategies had been completed.” Ms. Kyle said, “We don't know whether or not the same conditions will be in effect, in the CCAA.” Dr. Owen explained why NGP expected good recovery results in the CCAA because of a combination of relatively benign environmental conditions, improved knowledge and techniques, and planning. Dr. Maki explained circumstances specific to the Deepwater Horizon situation that are different than the north coast or BC or Prince William Sound. These explanations should be read in the transcript. 8547

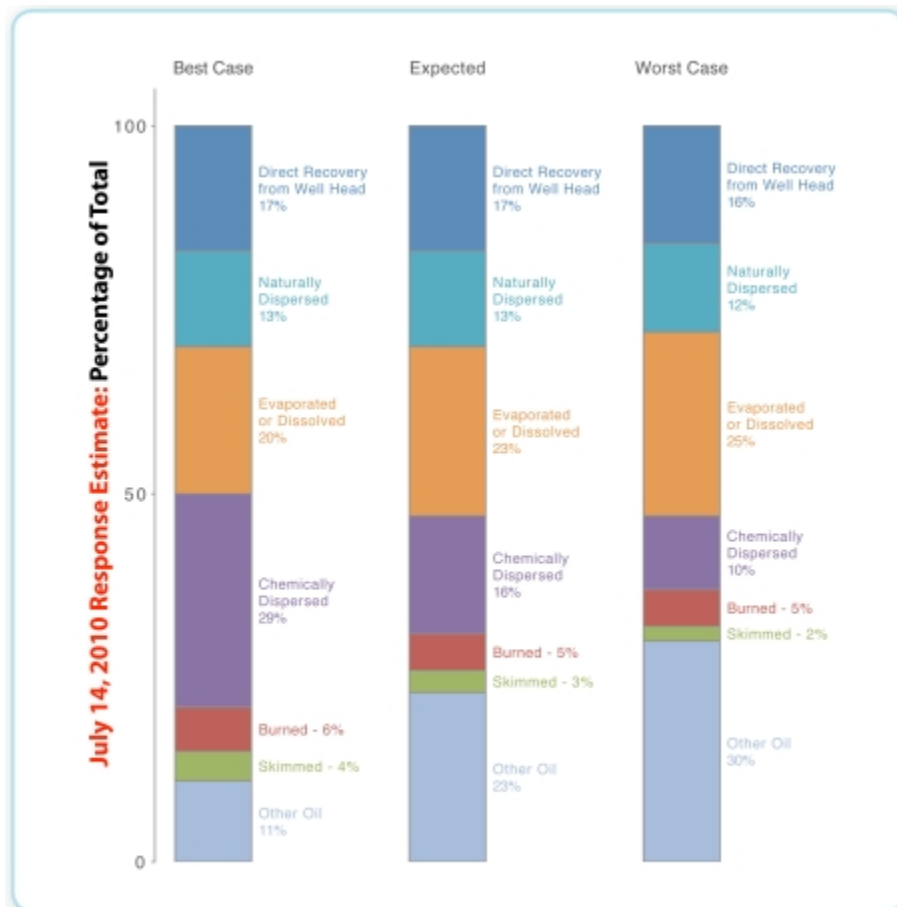


Figure 13: Response estimates expressed as percentages of the cumulative volume of oil discharged through July 14, 2010, in the best, expected, and worst cases. These estimates served solely as a guide for the national response to the Deepwater Horizon MC252 Gulf Incident.

Ms. Kyle asked if NGP’s materials assess the efficacy rate of mechanical recovery of oil, nor do they assess or identify the new equipment that is available. Dr. Owens said, “No it

does not address those.” Ms. Kyle: “Would you agree without knowing what that technology may be it’s not possible to assess the efficacy of that technology?” Dr. Owens said, “We will be using whatever is the best available technology at the time.” 8583

36,000 tonnes within 10 days theoretical capacity to recover

Ms. Kyle asked about NGP’s commitment to recover 36,000 tonnes within 10 days. Mr. McHugh said that’s theoretical capacity to recover. “The response planning standard is the capacity theoretically to recover. ... Every incident is very unique and so that’s where response planning standards say you cannot make these performance standards.” 8594

She said she understood that capacity does not equate to actual recovery and “based on ... the Deepwater Horizon and Exxon Valdez the amount recovered certainly wasn’t a 100% of what was spilled.” Mr. McHugh said, “If you used the term “recoverable oil” I would say that ... it is possible under certain conditions.”

Tugs

Ms. Kyle said, “Tugs are going to have a number of priorities to consider in the event of an incident; would you agree with that?” Mr. McHugh replied, “The tug’s primary duty is to the tanker itself.” Ms. Kyle: “It may be the case if a spill were to occur that tugs would not be able to implement spill recovery, it would depend on the particular circumstances and how much of their efforts were required to protect the ship;” Mr. McHugh said, “The timeline would change, and this is where the 6 to 12 hours of additional support comes in.” 8619

Ms. Kyle presented a number of scenarios, to which Mr. McHugh replied. She said, “All of these different things that could be taking place that require attention, like fires or health and safety constraints that may affect how close to the oil spill people can be for example, all of these things can result in a delay in containing and recovering the oil.” Mr. McHugh replied, “I think that’s a fair comment but what I would say is that it’s not that the response process is delayed, it’s one aspect of an entire process.” 8628

Ms. Kyle asked, “Would you agree that the longer the time between an oil spill and the time that you can contain it, the higher the chance the oil will reach shorelines, particularly in an area like the CCAA?” Mr. McHugh said, “I think we would agree with that. But in an area such as the confined channel area where you’re looking at primarily at a grounding-type risk, if that event was to occur it’s typical that it would be very close to shore. So you are expecting to have some shoreline oiling in the event of a spill ever occurring.” Ms. Kyle: “You said you are expecting? I just want to make sure I heard that right. You are expecting?” Mr. McHugh: “In the event of an incident.” Discussion continued about spills in confined places where the shoreline can sometimes help contain the spill. 8655

Booms to protect shorelines

Ms. Kyle suggested a scenario in which, “a particular shoreline is not in a sheltered area, is not protected from waves and winds, in which case if the waves were high enough, the booms would not be effective in stopping the oil from reaching the shoreline.” Dr. Owens

agreed, but said “that high energy situation is not going to occur in the confined channel area but if you do have wave action on exposed coast, it often acts to protect the oil from stranding.” 8669

Ms. Kyle put up a response to Gitxaala IR 2.3.6 [[Exhibit B45-7](#), Adobe 9] and noted first the question, “What does [NGP] mean when it refers to ‘priority protection’ and what specific steps would be taken to provide that ‘priority protection’ to specific areas?” And the response “that the protection ... would be done through deflection booming, exclusion booming and free oil recovery on water.” She asked “how one would protect a sensitive area if the waves are too high to use booms to contain the oil.” 8684

Dr. Maki said, “The extremely high-energy environments are notoriously depauperate of fauna. There just aren’t a lot of species present there. So they’re not high priority for protection. You can’t have it both ways. You either got to have a low-energy beach that we know as high biological productivity and high value, those are the ones we’d be protecting and those would likewise be the ones that would not be subjected to high-energy waves. So I’m trying to make a point that your scenario you’re painting isn’t realistic.” Discussion continued about the application and types of booms. 8684

Dr. Owens summed up, “[High wind] doesn't mean to say that we can't boom. Our expectation is that we can.” Ms. Kyle: “I understand that there are expectations. What I'm trying to get at are there circumstances in which those expectations are not met?” 8705

Natural degradation of oil

After a discussion of the natural degradation of oil in high wind conditions, Ms. Kyle asked for an explanation of what happens when natural degradation takes place. Dr. Owens described an oil slick spreading on the surface, eventually breaking down into multiple smaller particles. If this continues without interference by man, these particles will get smaller and smaller, to the point that the volatile hydrocarbons – ylidenes, benzenes and the natural occurring microbes and bacteria and fungi, actually ingest and metabolize that oil and break it down. “And so it's changed from a hydrocarbon into carbon dioxide and water. That's the life history of an oil spill if there's no outside interference.” 8714

Ms. Kyle described a scenario in Principe Channel or Douglas Channel where shorelines are within a kilometre of the tanker route, in some cases surrounding the tanker. She added high winds and waves, and said, “it's very likely in that kind of scenario with high winds and waves that the oil would reach the shorelines in those channels.” Mr. McHugh agreed it would be likely that you would have oil on the shorelines. Ms. Kyle extended her scenario to exclude dispersants, burning and mechanical recovery. Is there nothing that can be done? Mr. McHugh said, “I just do not feel this is a realistic picture that you're painting.” “To blanketly paint this picture of no response or limited response is inaccurate.” 8729

Ms. Kyle continued to explore circumstances or scenarios which might render recovery impossible. Mr. McHugh said, “No one is going to sit here and tell you that, if you had

the right circumstance, the right event, the right winds, that that will not affect how much oil ends up on shoreline. It absolutely will.” 8752

Orderly questioning broke up following Dr. Owens referring to the likelihood of a spill. Since this panel is not dealing with probabilities, Ms. Kyle raised her objection with the Chairperson, and Mr. Langen rose in defense of his witnesses. The Chairperson called for a break, “And there’s no likelihood about it; we will take the break.” 8786

On returning, the Chairperson ruled that if the witnesses are presented with an “if there is a spill” question, they must avoid considering the likelihood of that spill occurring.

Risk assessment methodology

Ms. Kyle quoted from the Ecological Risk Assessment (ERA) [[Exhibit B3-42](#), Adobe 60], “While acute and chronic adverse effects are likely to occur within these relatively small areas of shoreline, these effects are not likely to be significant at the scale of the CCAA.” She asked, is there “a significance determination being made there in the context of the entire CCAA?” Mr. Jeffrey Green replied, “That’s what the text says.”

Ms. Kyle asked if “the larger the geographical area considered in an assessment, the less significant the effects would appear to be in a particular sub-area?” Mr. Green said he would agree, and selecting the appropriate scale is important. Ms. Kyle suggested that NGP “did not assess what the effects might be at a more local scale than the entire CCAA.” Mr. Green said that was not correct. 8824

He said that both of the impact assessment volumes, Volume 8C [[Exhibit B3-42](#)] and Volume 7C [[Exhibit B3-22](#)], include a variety of ways of looking at the potential environmental consequences of different types of incidents. “There’s a general discussion in each of them. There’s mass balance scenarios. And then there’s also the ecological risk assessment. So each of the volumes includes three different ways of trying to get a handle on what are the effects of different types of spill incidence.” 8836

In the context of an environmental assessment, “one has to look at [a] valued environmental component ... and then the appropriate scale for the population. What we always try to do is look at whether or not a population can sustain the type of effect that we’re predicting. Ms. Kyle asked, “So would the population in that particular area survive the oil spill, as one example?” Mr. Green replied, “That would be one example.” Barnacles and whales are examples of species where the geographic scopes are quite different. 8843

Ms. Kyle asked, “Would you agree though that for an Aboriginal group specific areas may be of particular importance to that group as opposed to the entire CCAA?” Mr. Green agreed, nations and clans may view different parts of their territories as important.

Consequences to Gitxaala Nation in the event of an oil spill

Ms. Kyle asked, “I just want to confirm that Northern Gateway has not assessed what the impacts from accidents and malfunctions may be on Gitxaala Nation; is that correct? Mr. Green replied, “We have not assessed specifically to the Gitxaala Nation.” 8851

Ms. Kyle said, “When looking at Aboriginal group’s uses of resources, ... an oil spill could affect or could actually include the inability of that Aboriginal group to harvest certain resources in the area of the oil spill; would you agree with me?” Mr. Green replied, “Given the right conditions, yes.” 8853

Ms. Kyle said, “The traditional use data that was provided in the Gitxaala use study was not taken into account in the risk assessment that NGP undertook to determine potential consequences from this project; is that correct?” Mr. Green: “That’s correct. The traditional land use study was received after the impact assessment was completed.” 8858

Ms. Kyle: “The traditional use data that Gitxaala provided was not factored into any updates or errata or reply evidence that was filed by Northern Gateway after the use study was provided in June 2011; is that correct?” Mr. Green: “No, that’s not correct. Actually in a number of the information request responses the Gitxaala study was ... referred to specifically.” 8861

Ms. Kyle asked, “The traditional use data wasn’t used to assess what the consequences might be to Gitxaala in the event of an oil spill?” Mr. Green replied, “No, we have not done a specific assessment.” He said that, “We chose the other approach which is to say that given the seasonal extent of harvesting and the type of harvesting that goes on is that we felt that all parts of the CCAA within the Gitxaala territory would be used at some time of the year for harvesting. ... The multiple maps series provided in the traditional land use study [bear that] out quite clearly. ... Just based on that sample it shows very clearly that the Gitxaala use all of the coastal areas within the CCAA for some purpose at some time of the year.” 8865

Ms. Kyle’s questions are numerous and specific and do not summarize readily. In the interests of accuracy and fairness, readers are invited to follow in the transcript at 8871.

Ms. Kyle said, “If you’re someone who is consuming more shellfish and seaweed, and fish, your tolerance level for an oil spill is likely to be much lower than the average Canadian.” She specifically asked Mr. Chris Wooley to respond. He said, referring to cultural value of fish, that First Nations do place a very high value on traditional foods. Ms. Kyle said, “Setting aside the cultural issues, the fact alone that they’re consuming these food sources, shellfish, seaweed, fish that could be contaminated by an oil spill, that in and of itself could lead to a lower risk tolerance or a higher perception of risk from an oil spill? Mr. Wooley replied, “Potentially, yes” He said that evidence from the Exxon Valdez indicated that finfish were never affected by the spill, and were safe to eat throughout. 8882

Ms. Kyle noted that after the Exxon Valdez, the perception that Aboriginal people had that food was not safe to eat led to lower harvesting rates. Mr. Wooley agreed but suggested that part of that effect was due to Aboriginal people working on the spill and not having time for the traditional harvest. Ms. Kyle asked about the perception that herring were impacted for several years after the spill. Mr. Wooley agreed. 8897

Ms. Kyle asked, “Would you agree that the application for this project does not assess what the cultural impacts of an oil spill could be to a First Nation like a Gitxaala?” Mr. Green’s lengthy reply begins, “We didn’t assess the effects specifically to any of the coastal Aboriginal groups that have traditional territories that overlap the CCAA. So no, we did not assess that specifically, but we did in a general approach -- did talk about traditional use and associated effects, albeit at a very high level.” Read the full discussion, including Ms. Kyle’s follow-up questions, in the transcript. 8912

Ms. Kyle said that there has been no assessment of the cultural impact of a spill. Mr. Wooley said that in the recovery document [[Exhibit B83-17](#)] there is a pretty detailed discussion of traditional use [and] cultural effects from past spills and how the human environment does recover from oil spills. ... The message that I wanted to just get across is that the planning process for incorporating local knowledge into the geographic response planning process should and hopefully will take into account these very important and valid concerns. 8948

Ms. Kyle replied, “But that planning process is not a vehicle through which the decision-makers in this case can assess the acceptability of the risk to Gitxaala in the event of an oil spill. 8954

Mr. John Thompson said, “We could have developed a plan but we know that it probably would have failed and been completely unacceptable simply because the communities weren’t involved in doing it. You don’t do an emergency response plan that’s going to involve members of a community without their cooperation because it provides a really important opportunity for them to understand risk and consequences. ... And at the same time, we don’t understand enough about the individual communities to be even venturing down that road on our own. So it’s really, really critical is that those plans be developed together.” Mr. Thompson expands on these ideas in the transcript. 8984

He ended with, “The only way to go forward is to be sitting down cooperatively and trying to develop the geographic response plans. Ms. Kyle said, “But the decision-makers on this Project won’t have the information before them to be able to assess whether the future proposed mitigation will adequately mitigate the effects to Gitxaala and other First Nations.” Mr. Thompson replied, “I think there are many specifics that the Panel will never know for certain. What we’re talking about are a lot of hypotheticals. I mean, it could be that a spill never occurs in which case this is not an issue at all.” 8994

Empirical proof or perception

Ms. Kyle asked, “Would you agree that whether an Aboriginal group isn’t harvesting because of scientific evidence of contamination or isn’t harvesting because of perception of contamination and risk, the result is the same? There’s an adverse impact to the harvesting activities of that First Nation. Mr. Green replied, “I think that’s a fair assumption and that’s what I was indicating earlier that a perceived effect about the quality of the food can be just as important as the actual effect on the quality of the food.” 9006