Enbridge Northern Gateway Project
JRP Hearing Notes

Day 78 – April 6, 2013 – Prince Rupert – Vol 162

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Contents

Order of Appearances

Enbridge Northern Gateway Panel 5

Shipping and Navigation

Mr. John Carruthers Mr. Jerry Aspland Mr. Jens Bay

Mr. Audun Brandsaeter	Mr. David Fissel	Mr. Al Flotre
Mr. Keith Michel	Mr. Steven Scalzo	Mr. Thomas Wood
Mr. Michael Cowdell	Mr. Henrik Kofoed-Hansen	

Examination by Mr. Jesse McCormick for Haisla Nation (continued)
7005

Changes to responsibility of ballast water testing

Pulling up Exhibit B210-2, Adobe 3, Mr. McCormick noted errata 5, which changed the language around NGP's commitments to ballast testing for invasive species. The original submission had included a more solid commitment and responsibility for NGP, whereas the errata indicated tests would only be done "*if so directed by Transport Canada*". 7005-7008

Mr. McCormick asked if the change was proposed by NGP or Transport Canada, and Mr. Cowdell indicated that it was NGP's change, stating that the role of ballast water testing is already done by Transport Canada, so it would be redundant for NGP to also do so. Mr. McCormick asked if all ships at the marine terminal would be checked by Transport Canada, and Mr. Cowdell stated that the question should be posed to Transport Canada. 7009

Mr. Michel confirmed that assuming ballast exchange occurs in Open Ocean, "tankers will be allowed to discharge clean, segregated ballast into Canadian waters". Further discussion continued around ballast exchange regulations and requirements. 7020-7041

Calling up Exhibit E9-6-15, page 30, Mr. McCormick asked about the pending changes to Ballast Water Regulations by Transport Canada. He inquired if certain changes would "enhance environmental protections", and Mr. Michael indicated that new requirements for reliable water treatment systems "should very much improve the reliability of the ballast water management overall". 7043-7047

Mr. McCormick asked about particular water treatment technologies and asked the witnesses about their familiarity with them, and whether the company had assessed their effectiveness and ability to meet objectives in the new regulations. Mr. Cowdell indicated that the company would rely on Transport Canada to do such assessment. Further discussion ensued around equipment testing requirements. 7048

Mr. McCormick asked further questions related to ballast water testing and requirements of various parties, and what information NGP would have access to under the Ballast Water Control and Management Regulations. 7069

Mr. McCormick asked the witnesses if they believed that the proposed changes to the responsibility of ballast management would provide the same level of environmental protection that would be provided if NGP were to undertake it, as originally proposed. Mr. Michel discussed the various checks and balances associated with ballast management, indicating the company's confidence in the regime. 7082

Mr. McCormick continued with further questions around details of ballast inspection. The witnesses in most cases referred back to requirements being set out by Transport Canada. Mr. Cowdell provided a brief explanation of the difference between NGP project requirements, and Canadian statutes. 7093

Potential dispersal of invasive species from tanker deballasting

Mr. McCormick asked if deballasting in open ocean could result in "the dispersal of invasive species on islands and shores down current of the deballasting sites". Mr. Michel commented that the current panel does not have the biological expertise do answer such a question. Further questions were asked, and Mr. Michel indicated that Transport Canada and a vessel's flag state would determine when and where deballasting would occur. 7126

Further details were sought around ballast exchanges. Mr. Crowther questioned the relevance of the questions to the panel and the application. The Chairperson indicated that the subject wasn't "fully relevant to this particular project" and encouraged Mr. McCormick to move on. 7134-7152

Mr. McCormick asked further questions about NGP's intended requirements for ballast treatment systems, and the witnesses explained that the company would follow legal requirements, answering that if regulatory requirements do not call for such systems, the company will not independently require them as a condition of its tanker acceptance program. 7154

Bunker fuel spills and the importance of using double hulled tankers

Turning to a document, which compares tanker oil spill data from 2002-2011 with that from 1992-2001, Mr. McCormick noted that bunker fuel spills are fairly consistent across the past 20 years. Mr. Michel agreed and explained further context on what the data is presenting, based on his experience and knowledge. He noted that all the bunker incidents in the study involved single-hulled tankers, and his views of the importance of using double-hulled tankers, indicating that NGP has committed to requiring double-hulled tankers in its Tanker Acceptance Program. 7168

Mr. McCormick called up Exhibit B38-2, page 34, and asked if NGP's response around bunker facilities still stands. Mr. Michel confirmed that there would not be bunkering facilities at the Kitimat Terminal. Mr. McCormick followed up with further questions on the subject of tanker bunkering. 7187

The witnesses indicated that the tug bunkering location has not yet been determined. Similarly, Mr. Cowdell answered that the Proponent has not yet looked at requirements for pre-booming for fuelling of tugs. 7201

Further questions related to tanker fuels and regulations

Referring to an EPA regulatory announcement, Mr. McCormick asked further questions about international agreements on vessel pollution prevention. The witnesses once again stated that all vessels will be required to adhere to ratified regulations and deferred questions to other regulatory bodies. 7207

Mr. McCormick asked how changes in fuel-type requirements might impact shipping costs, and consequently netbacks for the project. Mr. Michel explained that industry will pay for fuel and equipment change costs. Mr. Crowther stated that the question of netbacks was not relevant to the current panel, and Mr. McCormick moved on. 7254

Weather forecasting, route planning and operational limits

Mr. McCormick asked about the importance of managing weather-related environmental risks to ensure safe navigation of vessels and Mr. Fissel indicated that risk reduction in relation to weather conditions had been addressed in much of the evidence. The witness also agreed with Mr. McCormick that weather forecasting accuracy is an important safety factor and provided an explanation as to why he felt considerable improvements have been made in forecasting over the past 15-20 years. 7270

Discussion continued on verification statistics for marine weather forecasting accuracy with Mr. Fissel providing details on the verification studies of marine forecasts by Environment Canada, and how regions are divided for the studies. Mr. Fissel and Mr. Crowther spoke about their confidence in forecasting strategies and the current state of shipping safety in the region. 7282

Discussion continued around tanker, tug and pilotage access to marine weather forecast information and how forecasts relate to vessel operating limits. 7297

Mr. Wood spoke about weather forecast interpretation by pilots and shipmasters, who ultimately make navigation decisions based on their expertise. Mr. McCormick asked further questions about the meteorological expertise of captains and pilots. 7333

Mr. McCormick asked if NGP had requested tailored commercial weather forecasts from Environment Canada. Mr. Fissel responded, “no, not that I’m aware of”. Mr. Cowdell again spoke about current shipping activities in the area relying on forecasting, and stated that if improvements were found to be needed during detail planning of the project, they would be discussed. 7353-7360

Mr. McCormick asked if NGP agreed that establishing operational limit criteria in relation to unreliable forecast data is important. Mr. Fissel answered that NGP can use available forecasting to establish safe operating limits and spoke about the quality and reliability of short term forecasts. Discussion continued around the difference between

aviation and marine route planning with regards to forecasts and Mr. Fissel stated that the issue could be addressed during future planning. 7361

Mr. McCormick asked if NGP would commit to working with a dedicated forecaster in an effort to prepare amendment criteria for operational procedures, and the question had to be re-stated more than once through discussion. Mr. Fissel explained that he felt it was too early in the project to determine whether or not such efforts would be necessary. 7388

Proposed marine geotechnical investigations

Referring to Exhibit B23-11, page 25, Mr. McCormick noted that NGP has not conducted marine geotechnical investigations, and plans to defer doing so until the detailed design phase of the project. Mr. Crowther confirmed that no such investigations had yet been conducted and Mr. Carruthers spoke about timelines of geotechnical tests for the project. 7423

Mr. McCormick noted that on page 27, the exhibit indicates potential instability of marine clays where the terminal site is proposed, asking if further assessment of this will be done during geotechnical investigations. Mr. Crowther answered that a "variety of items" will be looked at, and stated that the marine terminal will be "founded on the underlying bedrock and the overburden materials will be removed". 7442-7449

On cargo transfer and transshipment systems

Calling up Exhibit B23-12, page 25, Mr. McCormick noted that the document indicates that cargo will "*usually*" be measured and sampled by an independent inspector. He asked for clarification of how often such inspections would take place. Mr. Carruthers indicated, "they will be done at every time so it will be done. And it's very much more a commercial issue and it would be done on each transit". 7451

Mr. McCormick asked if vessels will be able to carry different condensates, and Mr. Michel explained that tankers can typically carry three different cargos. Mr. McCormick asked if each tank's contents will be tested when more than one condensate is being transported on a tanker. Mr. Cowdell indicated that such a level of testing is not a requirement. 7458

Mr. McCormick asked if NGP would be aware of more than one type of condensate being aboard a vessel. The Chairperson asked for the relevance of the question and Mr. McCormick explained his inquiry further. He asked, "has Enbridge ever transported condensate sourced outside of Alberta?" The Chairperson again asked him to go his previous question. Mr. Carruthers provided general information on the subject. 7464

Berthing structure design

Pulling up Exhibit B23-13, page 11, Mr. McCormick asked about details around the abnormal impact factors on Table 2-1. He then asked further about abnormal impact factors in relation to design plans and implications to safety. Mr. Crowther indicated that berthing structure design "is a complex engineering task and it's important to get the right combination of factors so that you do not under-design or over-design the berthing structures". 7476-7512

Mr. McCormick asked further details about the design of the berthing structure and marine facilities and how safety would be ensured. Mr. Cowdell indicated, "appropriate factors will be selected" for design parameters and that preliminary designs in the application are subject to change during the detailed design phase of the project. 7513-7518

Corrosion inspection and maintenance of vessels

Calling up Exhibit B83-20, Mr. McCormick asked questions about corrosion inspection requirements for vessels. Mr. Michel explained plans for requirements, and mentioned that the subject was discussed in detail on a previous hearing day. 7520

Tankage capacity for recovery vessels in oil spills

Referring to Exhibit B44-3, page 11, Mr. McCormick sought to understand how big temporary tankage will need to be in order to recover oil in an emergency discharge, before other tankages can arrive to assist. Significant discussion ensued as to whether or not the question was relevant to the current panel, and the Chairperson encouraged Mr. McCormick to continue directly with his question. Mr. Cowdell stated that tugs would have "a practicable size of tank". Mr. Scalzo spoke about design of tugs and pointed to Adobe 32 where storage capacity is indicated. 7530-7556

Discussion continued around spill response time and the design parameters of tugs in relation to their capacity for both spill prevention and spill preparedness. 7557

The roles and capabilities of tugs in emergency incidents

Turning to page 10, Mr. McCormick asked about additional response equipment, inquiring if a tug would need to leave a tanker behind to retrieve such equipment in an incident. Mr. Scalzo explained that a tug's first responsibility is to assist the vessel, and that depending on the incident, a tug may or may not be released to go elsewhere. 7569

Mr. McCormick asked if tethered escort tugs would be "capable of providing effective oil spill response aid" while still holding a tanker in place. Mr. Scalzo indicated that the answer would be dependant on the circumstances. Discussion continued and general descriptions of response plans were given. 7573

Mr. McCormick asked if a scenario could occur where a second tug would be required for "immediate effective oil spill response". Discussion continued around the question, and Mr. Scalzo stated, "I think there's really too many scenarios to be able to pre-plan or pre-judge that. I just don't know how you would… develop answers to every potential scenario for the missions…and capabilities of the tugs". Discussion continued 7581-7609

Turning to notes about response equipment carried by tugs in Exhibit B165-3, page 22, Mr. McCormick asked if non-tethered tugs would tow a vessel to carry containment booms, anchors, skimmer systems and temporary storage tanks. After some discussion with his colleagues, Mr. Crowther indicated that harbour tugs and escort tugs would have different capabilities. 37612

Mr. McCormick sought further details on the roles of tugs in response scenarios, and asked about the number of tugs required for the project. The witnesses provided general details, indicating that a fleet of 4-5 tugs would be used for the project. 7627

Comparing NGP operations with those in Prince William Sound

Mr. McCormick asked the panel about the tug system currently used in Prince William Sound. Mr. Scalzo provided details of his knowledge of the types of tugs in use, and established that 7-8 tugs are used. Mr. McCormick suggested that the operations in Prince William Sound involve roughly 250 tanker transits per year, which is the same amount expected for NGP operations. Mr. Scalzo indicated that ship calls in that Sound have been declining and Mr. Cowdell clarified that NGP forecasts 220 tanker calls, noting that Prince William Sound is a larger operation and has previously involved 1000 tanker calls per year. 7645

Other navigational issues

Referring back to Exhibit B44-3, pages 55-56, Mr. McCormick asked about details of transit times including calculations for loading and discharging of vessels, and other components involved in *optimum cycle time*. He asked what type of weather conditions were used to calculate expected transit times and Mr. Scalzo indicated that the times are based on "typical times that are experienced in these kids of evolutions" and on the witnesses experience with such activities. 7665-7677

Discussion continued around the length of time tugs would be away from port and the amount of time crew members would be operating a tug. Mr. Scalzo provided specific crewing details. 7678

Moving to Exhibit B23-7, page 11, Mr. McCormick turned the discussion to tanker travel through shallow waters. He asked if Dixon Island in Principe Channel presents any navigational difficulties other than the 35-meter depth mentioned in the study, referring to Exhibit B23-18, page 54 where manoeuvring challenges are presented because of reduced width in channels. 7698

Mr. Flotre indicated that the area is "more than ample for safe navigation". Discussion continued around the challenging nature of the area and Mr. Flotre provided further confidence in the manoeuvrability of the area. 7704-7709

Noting previous discussion of humpback whales transiting through Principe Channel in Volume 116, line 16181, Mr. McCormick asked if NGP could ensure that navigation and shipping safety would not be compromised by marine animal presence. Mr. Carruthers indicated that core humpback area is not the same area as the transit route. 7710

Mr. McCormick again asked if marine animal presence could endanger the safety of vessels in transit and Mr. Carruthers spoke about previous discussions around whale spotting boats and reduced vessel speeds. 7718

Discussion moved to wave heights in the Channel and estimations based on wind wave modelling. Mr. McCormick asked if wave heights are used to calculate dynamic ship

movements. Mr. Michel stated, “there are many factors that affect the motions of a ship [such as]…whether a sea state is confused or regular”. 7724

Mr. McCormick then asked for details related to how old ships can be for inclusion in NGP operations. Discussion moved towards ballast coating and corrosion and the witnesses referred to previous testimony. Mr. McCormick asked if NGP would commit to requiring all tankers to “have coated tops and bottoms for their coated tanks”. Mr. Michel stated the company would not make such a commitment and indicated that discussion on the topic had previously occurred. 7741

Mr. McCormick asked if Mr. Michel agreed that the International Maritime Organization “considers diluted bitumen tankers to be heavy grade oil tankers”. The witnesses stated that they would need to review the IMO regulations to understand the term *heavy grade oil*. 7767

Mr. McCormick continued with questions on the IMO regulations. 7820

More on structural fatigue and corrosion

Mr. McCormick asked further questions in relation to structural fatigue and corrosion, inquiring if higher temperatures in cargo and ballast tanks increase corrosion rates. Mr. Michel confirmed that they could accelerate corrosion rates. Mr. McCormick asked about the temperature of diluted bitumen when loaded onto tankers. Mr. Michel indicated that such information is documented in Volume 3 of the application. 7825

Mr. McCormick asked if sacrificial anodes would be required in NGP vessel’s cargo or ballast tanks. Mr. Michel couldn’t confirm whether there would be such a requirement for ballast tanks, but indicated that anodes would not be used in cargo tanks. 7844

English fluency of vessel officers

Mr. McCormick noted one of the requirements for the tanker acceptance program is that a tanker have English-speaking officers. He asked what level of fluency is required, and how NGP would verify fluency. Mr. Aspland indicated that the TAP will require English-speaking officers, and that the SIRE report will show whether English-speakers are on-board a vessel. 7848

Mr. Aspland confirmed that the International Convention on Standards of Training, Certification and Watchkeeping (STCW) would be applicable to NGP vessels. He couldn’t confirm whether the Convention process tested English fluency. Mr. Wood indicated that when non-English speaking individuals take examinations for licenses, they are tested on their proficiency in English. 7852

Mr. McCormick brought up a document that stated that 80-90 percent of accidents are ascribed to human error, pointing out the need for seafarers to be “well educated, able to follow orders, managed risks and solve problems”. He asked for agreement with the statement. Mr. Aspland stated that he believed all professional seamen holding STCW

certificates are certified to serve their positions and meet the requirements of the IMO. 7859

Mr. McCormick pointed to a statement indicating that global demand has resulted in "an especially acute shortage of trained [seafarer] officers". Mr. Aspland responded that NGP had not conducted an assessment of the availability of trained officers to satisfy the Project's needs, but he felt that the tanker acceptance program would ensure qualified officers come to the terminal. 7869

NGP's Terminal Operations Manual and Port Information Handbook

Calling up Exhibit E11-3-2, page 17, Mr. McCormick noted Transport Canada's recommendations that authorities review the Terminal Operations Manual and Port Information Handbook at least six months before operations begin. He asked if NGP had agreed to the recommendation. Mr. Cowdell called up NGP's response to TC's TERMPOL recommendations, Exhibit B74-02, page 14-20. 7872

Mr. McCormick asked who would have the final say in the event that there is disagreement between NGP and any of the federal departments with regards to the Port Information Handbook, Terminal Regulations and Terminal Operations Manual. Mr. Carruthers answered that NGP would be working with agencies to agree on the processes. 7887

Mr. McCormick asked if the operations manual and information book would be available to stakeholders and the public prior to the commencement of terminal operations. Mr. Carruthers indicated that the information would be independently audited and the results of that audit would be available to the public, as would results of an audit of NGP's Tanker Acceptance Program. 7890

Mr. McCormick asked if Haisla Nation would have an opportunity to review and comment on the information prior to the audit. Mr. Cowdell responded that the Terminal Regulations and the Port Information Handbook "are typically available publicly at ports and terminals worldwide, so I think those documents could be available for review by anyone that was interested". He added that the Terminal Operations Manual is more technical, so could be reviewed by a "competent third party." 7896

Mr. McCormick asked for clarity as to whether the documentation would be provided to Haisla Nation for review and comment prior to audits. Mr. Carruthers answered that NGP "would be prepared to do that". 7903-7904

Mr. McCormick asked if Haisla's comments would subsequently be provided to TC, DFO and the Pilotage Authority. Mr. Carruthers answered that he wasn't sure how comments would be incorporated. 7909

Mr. McCormick asked about NGP's experience dealing with the impacts of local fauna on the marine terminal operations, noting that the subject had been raised in Volume 113, line 12679. Mr. Cowdell answered that bubble curtains would be used to the extent

necessary during the construction of the terminal, indicating that its contractors may have experience with the use of bubble curtains in the area. 7918

Environmental responsibility of tow operators

Calling up Exhibit B44-3, page 11, Mr. McCormick noted that NGP would require tow operators to practice responsible environmental management. He asked if direction would be given in that regard, or if contracts would include certain environmental practice requirements. Mr. Scalzo answered that it is the intent of tugs and tug operators to perform services in an environmentally responsible manner, and that contracts will have an environmental requirement within them. 7950

Discussion continued on no-wash zones for tow practices and implications for environmental considerations. 7959

Mr. McCormick referred to a document that describes the occurrence of predator species, such as sea lions and bald eagles, congregating in the eulachon spawning area, near the terminal. He asked if NGP had assessed whether the presence of the predator species in the terminal area would impact operations. Mr. Carruthers indicated that he didn't have anything to add on the subject. 7975

Impacts of climate change on shipping and navigation

Mr. McCormick asked if NGP agreed that climate change is occurring. Mr. Crowther asked for an explanation on the relevance of the question to the current witness panel. Mr. McCormick went over historical meteorological data from Exhibit B16-26, page 65-66, noting temperature increases in the study area. Mr. Fissel discussed his views of the effects of temperature increases on weather patterns, noting that weather changes would be small in terms of practical importance for the shipping and navigation of the project. 7997

Mr. Fissel disagreed that temperature increase in the project area is occurring at a higher pace than the global average. Mr. McCormick continued with questions on the panel's thoughts on the implications of climate change and temperature increase for the Project's operations. Mr. Fissel answered similarly, "we just don't know enough about the change, other than it's small…it's hard to imagine, in my opinion, that there'd be any significant changes in terms of…shipping and navigation operations." 8017-8032

Similar discussion ensued, this time related to implications of glacial melt and runoff in streams and rivers along the project route, which the witnesses didn't think had large implications for the Project, noting that the marine terminal is in an area that is subject to large tidal fluctuations, so small sea level rises wouldn't create large impacts. 8033

Mr. McCormick asked if NGP believed that integration of climate change adaptation in decision-making could reduce long-term costs and impacts of the project on BC's communities and economy. Mr. Crowther again questioned the relevance to the current panel, and Mc. McCormick ended his questions. 8052

Mr. McCormick concluded by noting that the panel was the final panel his client, Haisla Nation, would be questioning. He pointed out that Haisla has continued concerns "about the Project and the manner it which it's being undertaken." 8055

Examination by Ms. Joy Thorkelson for UFAWU 8076

Consideration of commercial fishermen's concerns

Ms. Thorkelson stated UFAWU's concerns that NGP is unaware of fishing activities along the proposed shipping routes. She asked about NGP's *Local Meetings* from Exhibit B23-34, page 58. Mr. Cowdell confirmed that meetings were only held with tour boat operators. He pointed out that the HAZID meetings included two BC pilots who were commercial fishermen by trade. Ms. Thorkelson questioned how they could be assured that the views of commercial fishermen were represented, and similar discussion ensued. 8078

Ms. Thorkelson pointed out that NGP Witness Panel 1 had referred her questions and concerns to the present panel, in Volume 115, line 182. Mr. Flotre explained NGP's commitment to forming a fisheries liaison committee. 8097

Ms. Thorkelson pointed to NGP's evidence indicating a lack of fishing in the tanker traffic areas, as described in Volume 159, line 3322. She asked if the panel was aware of commercial gill net fishery for salmon at the head of Kitimat Inlet. Mr. Carruthers responded that they were aware of it, and again talked about the liaison committee as a way to better understand the issues. He also talked about agreements to adjust shipping times during fisheries openings. 8112

Ms. Thorkelson brought up Mr. Flotre's previous comments from Volume 159, line 3131, that most fishing and recreational boats have AIS. Mr. Flotre explained that his comments were based on his own practical experience and that he had not conducted any research on the subject. Ms. Thorkelson suggested that not many small fishing boats have AIS. 8125

Ms. Thorkelson highlighted comments from Volume 156, line 31847, in which NGP stated that it had received feedback indicating local waterway users did not have a problem avoiding commercial shipping traffic and did not foresee issues with it. She asked who gave NGP such feedback. Mr. Cowdell again pointed to the HAZID meetings and Ms. Thorkelson asked if NGP had spoken to anyone at the Port of Prince Rupert with regards to traffic issues. Mr. Cowdell answered that it had not. 8135

Ms. Thorkelson asked if NGP was aware of how many fishing vessels or fishermen are on the North Coast. Mr. Cowdell answered that previous panels may have discussed the issues. Ms. Thorkelson again expressed her concern that only two former fishermen had been spoken to by the Proponent. 8145

Previous vessel accidents

Ms. Thorkelson proceeded with questions of details around previous vessel accidents around the world and whether or not the vessels had been escorted by tugs and controlled

by pilots. Discussion ensued. Mr. Cowdell stated that the incidents in question would not have resulted in breach of cargo tanks if the vessels had been tankers. 8155

Ms. Thorkelson asked if the witnesses were aware of how much fishing gear is run over by piloted vessels each year in BC. Mr. Carruthers answered that he wasn't aware of such data. He also answered that he wasn't aware how many fishing vessels are forced off course, or forced to abandon nets. He again spoke about the proposed liaison committee as a way to address such concerns. 8208

Impacts of increased vessel traffic

Noting projected increases in vessel traffic to the Port of Prince Rupert, Ms. Thorkelson asked if tanker safety to and from Kitimat would be impacted by such projections. Mr. Cowdell indicated that the increases had been considered in NGP's assessments, and communicated his confidence that the area could accommodate such traffic levels. 8216

Mr. Cowdell spoke about the historically high levels of traffic to Kitimat, which have declined since the 1990s. Discussion on the subject continued and Mr. Flotre stated, "traffic in the North can grow tremendously before it even tries to rival what we have on the south coast… having a very good safety record in dealing with the traffic, and I personally don't see any problem with these figures here." 8224-8232

NGP project commitments

Ms. Thorkelson asked if there was a record of all the commitments NGP had made and Mr. Carruthers indicated that a list of all commitments was included in Exhibit B165-3, which would be updated as new commitments are made throughout the hearings. 8235

Ms. Thorkelson asked who would ensure that NGP had met its commitments if the project proceeded. Mr. Carruthers answered that the Joint Review Panel has the ability to ensure the commitments are carried through, and that the company is prepared for independent audits in many cases. 8250

Industry complacency and community engagement

Ms. Thorkelson reviewed various segments of the *Oil Pollution Act* 1990. Mr. Aspland agreed that industry and government complacency around monitoring the Valdez Terminal and vessel traffic in Prince William Sound contributed to the Exxon Valdez spill. He pointed out that the incident was a good wake-up call for the industry, which has changed "tremendously" since the accident. 8254

Ms. Thorkelson highlighted a statement advocating for citizen engagement as a way of combating such complacency. She asked for agreement that NGP could combat complacency by having a citizens committee involved in the preparation, processing and revising of its commitments. Mr. Carruthers spoke about NGP's collaborative process efforts to involve communities such as the QRA and CABs. 8271

Ms. Thorkelson continued with questions about various community engagement processes, and Mr. Carruthers continued to describe the NGP programs related to the subject, noting the company's recognition of the importance of broader groups. 8275

Ms. Thorkelson again spoke about UFAWU's concerns of ensuring NGP's commitments are fulfilled. She asked if an oversight program could be established. Mr. Carruthers again spoke about the company's "world class" compliance efforts such as community participation, and the use of independent audits, which would be released to the public. 8285

Ms. Thorkelson continued with the subject, asking how regulatory inspection could be ensured. Mr. Carruthers answered that he felt government inspection is increasing, noting recent increases in monetary penalties for non-compliance. He continued with descriptions of Enbridge's "broad system approach" establishing a safety culture, reporting systems, and other responsible measures. He added that the NEB had recently announced increased oversight to ensure accountability. 8294

Ms. Thorkelson indicated concerns of ongoing implementation of accountability measures, noting the disappearance of various government inspection programs, such as the Canadian Food Inspection Agency and meat inspection. She again asked if NGP would support a citizen's oversight program. Mr. Carruthers again spoke about the "very progressive possibilities" NGP has talked about, which "could increase communication and education", stating "it's hard to imagine how you can get much better through regular audits by qualified people and the public dissemination of that information". 8299-8302

Ms. Thorkelson noted the requirement for the Alyeska Pipeline Service Company to fund the Regional Citizen's Advisory Council in Prince William Sound, under the *Alaskan Oil Pollution Act*, and asked if NGP would participate in and pay for such a civilian group to ensure environmental safety commitments are kept up. Mr. Carruthers answered that it would not pay for such a group, again noting the "more efficient effective system than what's in place there." 8303-8311

Anchorages

Ms. Thorkelson asked about NGP's commitment to not block anchorages or refuges so that fishing vessels can use them. Mr. Flotre agreed, stating that NGP "can always commit to using the practice of good seamanship." He explained that Transport Canada, not NGP, is responsible for creating new anchorages. Discussion on the subject continued. 8316

Ms. Thorkelson followed up on a previous discussion about navigational aids. She asked for clarity as to whether aids could experience battery failure, weather damage, or be impacted by severe winds. Mr. Flotre described the two types of aids and Mr. Fissel described the "very good" reliability of weather buoys. Discussion on the subject continued. 8333

Examination by Ms. Rebecca Brown for the Joint Review Panel 8362

Vessel size and navigational challenges

Calling up Exhibit B23-2, Adobe 78, Ms. Brown asked if the types of vessels depicted call at the Port of Prince Rupert. Mr. Flotre answered that bulk carriers in the given range

bring alumina ore into the Alcan facility, as do carriers of much larger sizes to the coal and grain terminals. 8366

Discussion continued on the size of vessels currently using the Port of Prince Rupert and the CCAA, compared to those proposed by the Project. Mr. Flotre indicated that the largest vessel to currently or historically use the CCAA is 50-thousand tonnes. Discussion continued. 8374

Ms. Brown called up Exhibit B23-34, Adobe 61 and 114. She highlighted two statements from the QRA: the first indicating, "*tanker incident frequencies are influenced more by the specific shipping route, than the type of tanker*." The second, on page 114 indicated that increased sailings negatively affect overall spill risk. She asked if there are unique design aspects of a 320- thousand tonne VLCC that increase navigational challenges of handling currents and winds, as compared to the smaller vessels that currently transit the CCAA. 8396

Mr. Wood described the handling characteristics of various vessel classes. He explained that larger vessels take "a little bit more time to react and to complete the manoeuvre", and that handling VLCC tankers requires more experience. Mr. Flotre added that he would "much prefer to handle a larger ship" because external forces affecting the vessel happen slower than they do on smaller ships. Mr. Aspland talked about the difference of handling a vessel that is loaded or in ballast. Discussion continued. 8400-8418

Ms. Brown asked further questions about the impacts of external forces on VLCC tankers. Mr. Flotre explained that the ships are built to handle large wind forces. Mr. Wood added that the mass of the vessels is under the water, like an iceberg, meaning that the effect of wind is "not that great." 8421-8425

Ms. Brown asked about NGP's proposed drift study, previously discussed in Volume 159, line 3694. Mr. Michel provided details of the timeline and intent of the study. Discussion continued on the expected learning and implications of the study. 8427

Examination by Member Hans Matthews of the JRP 8444

Eliminating human error

Noting concerns about human error as a major contributor to accidents, Member Matthews asked the captains to comment on their confidence that the management and certification systems will eliminate human errors. Mr. Aspland answered that human error can't be absolutely eliminated. He spoke about his confidence in reduced likelihood of error from measures such as STCW, ISM, effective training, improved vessel vetting, and the presence of pilots and tug escorts. 8445

Mr. Flotre agreed with Mr. Aspland's comments and added comments about the importance of proper training and communication with pilots. Mr. Wood spoke about the challenges of "the old days", which caused human error. He explained that the International Ship Safety Management Code has provided standardized checks and balances around training systems and other processes. 8456

Mr. Wood also spoke about the importance of the teamwork between the bridge, the ship and the shore management. He stated, “these are the things that I would put to the Panel as being most important. And would say that human error today, yes, it’s still going to be there, but the likelihood of it having an influence on the safety of tanker and on oil spills has very, very much diminished in the past years.” 8469-8470

Mr. Scalzo added comments about the importance of pre-escort conferences and job safety analyses, which act as safety analyses prior to transits, and highlights anything affecting the tug, pilot, ship, and crew. 8471

Examination by Member Kenneth Bateman of the JRP 8476

Navigational equipment failures

Member Bateman asked for clarification around a previously discussed invitation to the Coastal First Nations for participation in the QRA process. Mr. Carruthers agreed to undertake to provide information on how the invitation was extended and what response was given. 8477

Member Bateman asked the captains if they had experience with environmental conditions causing a ship’s navigation and tracking systems to be impaired. Mr. Flotre explained that vessels have redundancies to ensure stability including two radars, with two separate batteries, and radios with separate battery backup systems. Tugboats also have two separate systems. 8495

Member Bateman followed up with additional questions on the subject. Mr. Flotre spoke about the capabilities of radar systems. Member Bateman asked for confirmation that the captains do not foresee a circumstance where information would be prevented from reaching a navigational instrument. 8501

Mr. Wood spoke about interference to GPS from sun spots, which occur once or twice a year and don’t last long. He stated that such interferences do not prevent the Master and Pilot from safe navigation because of alternative navigation methods. Mr. Wood pointed out, “I have had a ship blacked out on occasions and I have had to go to anchor to do repairs on occasions. I have had to drift at sea to do repairs on occasions. In those occasions, everything was done in a safe manner and there was no risk to the ship, the cargo or the personnel on board the ship.” 8508-8514

Mr. Aspland provided stories of his experiences from sailing in the 60s. He pointed out that today’s equipment is “very robust”, and “we’ve learned over time that backups and batteries and things like that are absolutely necessary”, indicating his confidence in today’s conditions. 8515-8519

Mr. Scalzo spoke about improvements in equipment and safety management systems, which are audited by third parties. 8521

Following up on Member Matthews' questions, and noting the contingencies currently in place, Member Bateman asked if the captains had experienced or been aware of a human failure experience in the past five years. Mr. Aspland answered that he had been out of the marine business too long to be able to answer the question. Mr. Wood explained that he had been away from sea and tankers for 11 years, so could not answer the question. 8523

Mr. Flotre indicated that he had retired four years ago. He explained that accidents typically involve a series of mistakes, known as the 'error chain'. He spoke about training of mariners, which involves recognizing the chain. He stated that there have been incidents in recent years that probably involved human error, but that he didn't have any personal experience with one. 8530

Examination by Sheila Leggett, Chairperson of the JRP 8536

Additional safety considerations

The Chairperson asked the Panel if they were aware of additional mitigation measures that could reduce the chance of accidents. Mr. Aspland answered that he didn't know of any, but warned that in his experience safety planning can have unintentional consequences because of so much activity. He explained that in Los Angeles, changes to vessel traffic zone lanes were expected to be "the greatest thing ever", but that in doing so, a "terrible error" was made. He warned, "as you look through all this and think about all this just be sure that in fact the project has a high safety level which is very important, but be sure that it all fits together." 8537

Mr. Flotre indicated that he was impressed with the mitigation and navigational planning in the proposal. Mr. Michel expressed similar sentiments and described an overview of risk mitigation planning. 8542

Mr. Wood stated that the people involved in the writing of the TERMPOL, including himself, had made a lot of recommendations. He thanked Enbridge and NGP "for considering and committing to all of these things, which, in my opinion makes this a world-class operation." 8559-8560

Mr. Scalzo spoke about the importance of recognizing the superior capabilities of the escort tugs proposed for the Project, which he differentiated from conventional tugs. 8564

The Chairperson asked Mr. Carruthers if NGP had considered inviting local First Nations or other stakeholders to observe field trials with tugs and unladen tankers. Mr. Carruthers indicated that he thought having local representation would be important, but hadn't "completed how that might happen". 8569-8574