

**JOINT REVIEW PANEL FOR THE ENBRIDGE
NORTHERN GATEWAY PROJECT
COMMISSION D'EXAMEN CONJOINT DU PROJET
ENBRIDGE NORTHERN GATEWAY**



**Hearing Order OH-4-2011
Ordonnance d'audience OH-4-2011**

**Northern Gateway Pipelines Inc.
Enbridge Northern Gateway Project
Application of 27 May 2010**

**Demande de Northern Gateway Pipelines Inc.
du 27 mai 2010 relative au projet
Enbridge Northern Gateway**

VOLUME 159

**Hearing held at
Audience tenue à**

**Chances Prince Rupert
240 West, 1st Avenue
Prince Rupert, British Columbia**

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HEARING /AUDIENCE

OH-4-2011

IN THE MATTER OF an application filed by the Northern Gateway Pipelines Limited Partnership for a Certificate of Public Convenience and Necessity pursuant to section 52 of the *National Energy Board Act*, for authorization to construct and operate the Enbridge Northern Gateway Project.

HEARING LOCATION/LIEU DE L'AUDIENCE

Hearing held in Prince Rupert (British Columbia), Friday, March 22, 2013
Audience tenue à Prince Rupert (Colombie-Britannique), vendredi, le 22 mars 2013

JOINT REVIEW PANEL/LA COMMISSION D'EXAMEN CONJOINT

S. Leggett	Chairperson/Présidente
K. Bateman	Member/Membre
H. Matthews	Member/Membre

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

2864. **MS. HUMCHITT:** Thank you, Madam Chair.

2865. **THE CHAIRPERSON:** Good morning Mr. Robinson.

--- EXAMINATION BY/INTERROGATOIRE PAR MR. ROBINSON:

2866. **MR. ROBINSON:** Good morning Madam Chair. Good morning Panel members and Panel staff and witnesses and, hiding behind the post, who I can't see, Mr. Carruthers and Ms. Estep.

2867. Just for the witnesses' benefit, my name is Barry Robinson and I am counsel to a coalition of three environmental groups being the Living Oceans Society, the Raincoast Conservation Foundation and ForestEthics Advocacy and I look forward to our interaction today.

2868. I should just say by way of comment that I always start the week with what I think is a very carefully woven tapestry of questions for you and by this time in the week, after others have asked their questions, I'm left with what I think is a few threads that I hope lead somewhere. So on that basis, I'll proceed.

2869. So if my questions all -- but I would just say if my questions seem a little fragmented, it's because often that's what you're left with in the pecking order is a few fragments to work with.

2870. During my questioning, I'll refer often to documents that are on the record but I often will not ask Ms. Gilbert to bring them up, just in interest of time.

2871. But certainly, if you feel you would like to see the passage I'm referring to, please let me know and I'm sure, with Ms. Gilbert's magic, she'll bring them up and we can have a look at them.

2872. And with that, I'm going to start by breaking my own rule and ask Ms. Gilbert to bring up, if she could, B23-15, Adobe page 44, which is a table -- Table 4.2.

2873. Yes, that's the table. Thank you very much.

2874. My question around this table just stems from that elsewhere in the

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

Application, it states that:

“Condensate will be imported from a variety of supply areas including the Asia Pacific and the Middle East.”

2875. And then, I believe it was yesterday or on Wednesday, I believe, I heard Mr. Carruthers say that tankers from Asia will come -- will proceed north of Haida Gwaii; so in other words, by the North route.

2876. So I'm just trying to reconcile that with this table that would show that no condensate tankers would travel by the North route.

2877. Can someone help me reconcile those various statements?

--- (A short pause/Courte pause)

2878. **MR. JOHN CARRUTHERS:** So my understanding is the tankers going to Asia will use the northern route but, certainly, I would Captain Wood to confirm if that's the general case.

2879. **MR. THOMAS WOOD:** Tankers outbound from Prince Rupert, Triple Islands, would use the route to the north of Haida Gwaii -- sorry, use the route to the north of Haida Gwaii and tankers coming from Asia could possibly use both: the route to the north of Haida Gwaii and the route to the south of Haida Gwaii, depending on their weather routing.

2880. That would be the key factor would be weather routing for those guys.

2881. **MR. ROBINSON:** So just to confirm, then, am I correct that this table may not be entirely accurate then?

2882. **MR. MICHAEL COWDELL:** I think we covered the other day that it's a forecast.

2883. It's a forecast with outbound -- with some outbound tankers to Asia, some outbound tankers to the southern U.S. and condensate tankers coming in from the Southern Hemisphere and coming up the south routes.

2884. **MR. ROBINSON:** So if it is a forecast, your forecast is that no condensate tankers will travel by the north route?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

2885. I -- you can understand my confusion, I think.
2886. **MR. THOMAS WOOD:** Could I clarify a little more perhaps on what I just said?
2887. Vessels which are going towards Asia, they generally follow a great circle route or come with a great circle route which it takes in the Aleutians.
2888. And the reason for that is that they meet favourable ocean currents on their way from the Aleutians down toward Japan to the Luzon Strait before going through to Singapore, Hong Kong, et cetera.
2889. In the other direction, coming from Asia, they may possibly want to avoid the worst of the weather and, of course, they want to avoid the -- what is now an unfavourable ocean route.
2890. So it's more likely that those vessels would come across and approach to the route which comes between the Haida Gwaii and Vancouver Island. That's the most likely scenario.
2891. But that's dependent on the tanker master's preference and the tanker master's weather ocean routing.
2892. **MR. ROBINSON:** Thank you.
2893. So just to be perfectly clear, some inbound condensate tankers may travel by the North route?
2894. **MR. THOMAS WOOD:** It would appear a possibility.
2895. **MR. ROBINSON:** Thank you.
2896. I want to touch just briefly on the discussion of alternate routes and I don't want to revisit the discussion that's happened earlier this week.
2897. Just to summarize, if I might, it's my understanding the intention is that tankers would use the identified North and South routes, except for in exceptional circumstances when they may use certain alternate routes.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

2898. Is that a fair summary of what we heard earlier this week?
2899. **MR. MICHAEL COWDELL:** Yes.
2900. **MR. ROBINSON:** Thank you.
2901. I know that Cridge Passage was discussed earlier in the week as an alternate route. Document -- the TERMPOL Study 23-6 identifies some other alternate routes, namely the Inner Passage, Whale Channel, Laredo Channel and Laredo Sound.
2902. Are these similar to Cridge Passage in that they would only be used in exceptional circumstances?
2903. **MR. AL FLOTRE:** When the pilots were consulted, they indicated that they did not wish to use Laredo Sound with tankers and the Inner Passage is a definite out for tankers.
2904. So going Grenville Channel or the Kingkown Point Route, that's a definite out for tankers. The channels are too narrow.
2905. **MR. THOMAS WOOD:** As a co-author of TERMPOL on the shipping routes, I would like to say that the TERMPOL document which you all have access to specifically gives the routes and it specifically says Laredo Sound is not a route and Grenville Channel is not a route.
2906. **MR. MICHAEL COWDELL:** That's covered on -- in Exhibit B2306 -- B23-06, Adobe page 50.
2907. **MR. ROBINSON:** Yes. If we just -- thank you for bringing that up.
2908. So it says the Inner Passage is not recommended. Whale Channel is viable but not preferred. Laredo Channel and Laredo Sound not recommended.
2909. But I believe Captain Flotre just said that Inner Passage, Laredo Sound and Grenville Channel would not be used under any circumstances.
2910. Did I hear that correctly?
2911. **MR. AL FLOTRE:** First of all, I can't see, you know, any times or

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

any circumstances that would prompt the vessel to use Laredo Sound; they have very viable alternatives.

2912. So I would say, you know, that there would be no use of Laredo Sound as a route for our tankers.

2913. **MR. ROBINSON:** Is that commitment that Northern Gateway is willing to make, that no tankers will use the inner passage Laredo Sound or Grenville Channel?

2914. **MR. JOHN CARRUTHERS:** Yes that's correct for Laredo Sound.

2915. **MR. ROBINSON:** How about for the inner passage?

2916. **MR. JOHN CARRUTHERS:** The same, yes.

2917. **MR. ROBINSON:** And for Grenville Channel?

2918. **MR. JOHN CARRUTHERS:** Yes, again for the tankers.

2919. **MR. ROBINSON:** And will Northern Gateway add that to its list of commitments which I believe is Document B163-5?

2920. **MR. JOHN CARRUTHERS:** Yes we could.

2921. **MR. ROBINSON:** Thank you.

2922. With respect to these same sort of alternate routes would tugs related to the Northern Gateway Project who are repositioning, would they use those routes?

2923. **MR. MICHAEL COWDELL:** Just give us one second here. I think that's covered in -- in one of our documents here.

2924. **MR. ROBINSON:** Thank you.

--- (A short pause/Courte pause)

2925. **MR. JOHN CARRUTHERS:** We expect they might use those routes for repositioning so there -- we would not want to take that option away from

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

- them.
2926. **MR. ROBINSON:** Okay, thank you.
2927. **MR. AL FLOTRE:** It's also important to note that 296-metre cruise ships use Grenville Channel.
2928. **MR. ROBINSON:** Thank you.
2929. In the same TERMPOL study that I believe is up on the screen, on page 46, the first paragraph, it indicates that the south route -- so through Caamano Sound -- would be limited to moderate weather conditions.
2930. Can you give me some idea of what's meant by moderate weather conditions?
2931. **MR. AL FLOTRE:** This area -- there's a number of factors that would determine a decision whether you were to use Caamano Sound. Not only the amount wind but also the length of time that wind had been blowing and the current at the time which can increase wave height. So it would be on an individual basis.
2932. A decision made by the captain of the ship, the pilot on board and the tug master to give his ability -- depending on his ability to make-up to the tanker. So the tanker would not proceed through Caamano Sound unless the tug was tethered.
2933. **MR. ROBINSON:** Thank you. You've anticipated my next question which was whether the tug would be tethered or not.
2934. And I just -- I think on page 51 of this same document it states that -- in the first paragraph again, states there are several conditions for safe passage of a VLCC on the south -- through Caamano Sound and that was a tug escort and you've indicated that would be tethered. Thank you.
2935. It also mentions improvement of navigational aids. Can you tell me what additional navigational aids would be needed right there to make that passage safe?
2936. **MR. CROWTHER:** Mr. Robinson, you're aware that there was

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

significant discussion about the additional navigation aids over the last few days?

2937. **MR. ROBINSON:** I am. I'm just asking specifically with respect to passage through Caamano Sound.

2938. **MR. MICHAEL COWDELL:** I think we may have already answered the question about how navigation aids would be developed during detailed planning and the consultation that would have to go into that process.

2939. **MR. ROBINSON:** So -- so this reference to improvement of -- of nav aids would also enhance navigational safety, there's no specific navigational aid at Caamano Sound that you -- that the author of this was referring to here?

2940. **MR. MICHAEL COWDELL:** There -- there's a list provided in TERMPOL. I could bring up the exact reference and I -- it would be some or all or -- of those -- those additional navigation aids or possibly others that someone else -- that would identify in the future. So we haven't come to a final determination yet, as -- as I've discussed previously.

2941. **MR. ROBINSON:** Thank you.

2942. I do want to go actually back to a tethered tug. Would that be that a -- a ballasted or not laden, a tanker arriving would be tethered as well as -- as laden tankers coming the other way?

2943. I guess what I'm asking is should -- this recommendation that -- that a tanker be tethered to pass through Caamano Sound, does that apply both to -- to the laden and ballasted vessels? Maybe that's an easier way to answer.

2944. **MR. AL FLOTRE:** That is a -- and I maybe should refer to Captain Aspland who developed this but the -- in absolutely fair weather the -- the need of tethering that tug -- in marginal weather the tug would be tethered.

2945. **MR. MICHAEL COWDELL:** The tether -- the tethering of tankers only applies to laden vessels. I think we've been pretty clear on that.

2946. **MR. AL FLOTRE:** But I could assure you that a pilot, if -- if the weather was marginal or near the -- the safe limits would require the tug being tethered for Caamano Sound.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

2947. **MR. ROBINSON:** Thank you.

2948. Will the pilot have boarded the vessel before it passes through Caamano Sound?

2949. **MR. MICHAEL COWDELL:** I think we've been pretty clear in our responses to information requests, that the pilot boarding stations, the final determination of those stations is -- is the purview of the Pacific Pilotage Authority and not the project to determine.

2950. **MR. ROBINSON:** I'm not concerned about where the boarding station is, I'm just wondering if there's a pilot on board when the ship goes through Caamano Sound?

2951. **MR. THOMAS WOOD:** I can state here that a master is not permitted by law to proceed without a pilot through Caamano Sound. This is part of B.C. pilotage waters and he would be breaking the law if he even attempted to do this. So the answer is no.

2952. **MR. ROBINSON:** Thank you.

2953. **MR. MICHAEL COWDELL:** I think what -- what Captain Wood is -- is saying is that there will be a pilot on board of course within the compulsory pilotage area.

2954. **MR. ROBINSON:** Thank you.

2955. And if I understood just your previous response, at this point you do not know where pilots would be stationed for -- for boarding for Caamano Sound?

2956. **MR. MICHAEL COWDELL:** That's -- that's not -- as I just -- I think I answered that question.

2957. **MR. ROBINSON:** Captain Flotre, do you see -- are there weather conditions particularly at Caamano Sound that would prevent a pilot boarding?

--- (A short pause/Courte pause)

2958. **MR. AL FLOTRE:** Of course, the first requirement for transiting Caamano Sound would be that their pilot be on board and the authority -- the

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

- pilotage authority will be determining where those pilot boarding stations and methods will be.
2959. But that has not been done at this time.
2960. **MR. ROBINSON:** Thank you.
2961. I think you've testified earlier this week that it's seldom that weather conditions prevent the boarding of a pilot; is that correct?
2962. **MR. MICHAEL COWDELL:** That was from the Pacific Pilotage Authority's own letter of comment which is in the registry.
2963. **MR. ROBINSON:** Okay.
2964. But I'm asking, in Captain Flotre's experience, do you see -- maybe what I'm asking is: Do you see any difficulties with respect to weather at Caamano Sound?
2965. Because, certainly throughout the evidence, it's talked about -- particularly in winter -- the difficult conditions at that location.
2966. **MR. CROWTHER:** Just to be clear so that I'm clear on your question, Mr. Robinson, are you still putting the question in terms of would weather make it difficult to board a pilot for Caamano Sound?
2967. Is that still the focus of your question?
2968. **MR. ROBINSON:** Still the focus of my question.
2969. **MR. CROWTHER:** Thank you.
2970. **MR. AL FLOTRE:** Well, in my experience we've never boarded for Caamano Sound. We've always boarded at Triple Island if the ship was using Caamano Sound.
2971. And in 23 years of piloting, I can only recall one incident where my boarding was delayed by weather.
2972. **MR. ROBINSON:** Thank you.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

2973. Have Coast pilots ever suffered a fatality while attempting to board a ship?

2974. **MR. AL FLOTRE:** From my information that has been twice: One it's at Victoria and one at Triple Island.

2975. There are many mitigation efforts have been introduced since those deaths and, thank goodness, for the past 28 years or so there have no been -- have been no further incidents.

2976. **MR. ROBINSON:** Thank you, sir.

2977. **MR. JERRY ASPLAND:** I'd like to add that international rules and regulations as to boarding of pilots have changed tremendously in the last 15 to 20 years because of issues around pilot boarding.

2978. So there's a whole new regime to do this which makes it much safer.

2979. **MR. ROBINSON:** The Application -- and particularly B3-23 which is Volume 8A of the Application -- reference is made to MCTS traffic data for July and October of 2005 and I believe that's sort of the basis of much of the traffic analysis that follows.

2980. Has Northern Gateway received or gathered any more recent traffic statistics?

--- (A short pause/Courte pause)

2981. **MR. ROBINSON:** That reference was page 27, Section 2.5, if that assists.

--- (A short pause/Courte pause)

2982. **MR. MICHAEL COWDELL:** We haven't carried out any additional traffic analysis since TERMPOL was completed.

2983. However, I would note that the letter from the Pacific Pilotage Authority does comment that traffic -- or at least the number of pilotage assignments has been decreasing over the last years for the North Coast.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

2984. **MR. ROBINSON:** Thank you.

2985. On Wednesday, I believe I heard Northern Gateway commit that they would cover the cost of installation of new navigation aids including radar if Transport Canada and the Canadian Coast Guard are unable or unwilling to pay for those installations.

2986. Is that correct?

--- (A short pause/Courte pause)

2987. **MR. JOHN CARRUTHERS:** This is something that we have anticipated that Transport Canada and the Canadian Coast Guard would undertake.

2988. We had made commitments as a project though and because we'd said that we had to make sure that there was a way that they could be implemented if Transport Canada or Canadian Coast Guard did not. Our expectation is that they will and that they will want to.

2989. And again, the announcements they've made over the past week would indicate that that's something they're planning on undertaking.

2990. So because it's broader than Northern Gateway and we're such a relatively small portion of the marine traffic in the Prince Rupert area, it'd be more appropriate for Trans Canada and the Canadian Coast Guard. That's our expectation but, again, to ensure our commitments were made we had to make that.

2991. But I think that the right answer is Transport Canada and the Canadian Coast Guard.

2992. **MR. ROBINSON:** So if your expectation is not met then Northern Gateway is committing to pay the cost of those installations?

2993. **MR. JOHN CARRUTHERS:** Yes, that's correct.

2994. **MR. ROBINSON:** And will you add that to your table of commitments?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

2995. **MR. JOHN CARRUTHERS:** I expect it's there.

2996. **MR. ROBINSON:** I don't believe it is, but ---

2997. **MR. JOHN CARRUTHERS:** I understand, so fair enough.

2998. **MR. ROBINSON:** Okay. Thank you.

2999. I wonder, Ms. Gilbert, if we could bring up E9-6-13 which is the written submission of the Canadian Coast Guard. And page -- page 57, paragraph 50.

3000. And just to -- maybe I'll just give you a moment to read that paragraph.

--- (A short pause/Courte pause)

3001. **MR. ROBINSON:** And my question just being: Does Northern Gateway agree with that cost estimate for the installation of new navigation aids?

3002. **MR. JOHN CARRUTHERS:** We haven't done an estimate of the aids.

3003. Again, we went through starting with what we believed was required for safe passage and that was our mark.

3004. **MR. ROBINSON:** But you haven't costed those at this point?

3005. **MR. JOHN CARRUTHERS:** We have not.

3006. No, again, I expect the Government of Canada will be looking at this through what they've announced in the recent announcements.

3007. **MR. ROBINSON:** Yes.

3008. **MR. AL FLOTRE:** If I could just add, I have personal information, knowing the person completing the task, that the Canadian Coast Guard is, at this time, budgeting the cost of the aids.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3009. So a very good cost estimate will be available shortly but not at this time.
3010. **MR. ROBINSON:** Thank you.
3011. I know there's been some discussion and I think you referred to this, Mr. Cowdell, just in response, is that, you know, there's to be negotiations or discussions amongst the various parties as to the location of these various aids.
3012. But what I'm wondering is who actually makes the final decision on where new aids to navigation will be located?
- (A short pause/Courte pause)
3013. **MR. MICHAEL COWDELL:** Can you just repeat the question one more time please?
3014. **MR. ROBINSON:** I'm wondering who makes the final decision as to where a new aid to navigation can be located.
3015. **MR. AL FLOTRE:** The decision on aids -- and this is coast wide -- the process that's in place now is that it's the Coast Guard who makes that decision but after a very extensive consultative with all the stakeholders, you know, from fishermen's groups up to pilots and to the actual tanker, the chamber shipping represented by -- represents the shipping interest. So after that long process, it's the Coast Guard who are going to do the installation and approve the positioning of the aids and the number of aids.
3016. **MR. ROBINSON:** And just to be clear, that would mean that Northern Gateway could not install an aid to navigation without the approval of the Coast Guard; is that correct?
3017. **MR. AL FLOTRE:** There is a process for doing that, but you can have private aids, there's many on the coast, usually closer to the facility, but it does have to have the approval of the Coast Guard in case it should interfere with some other navigation process in any way.
3018. So the Coast Guard has the equipment to install the aids, they have the equipment to maintain the aids, and the best process is to have the Coast Guards install and maintain the aids.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3019. **MR. ROBINSON:** Thank you. I think you've -- you're very good at anticipating my questions.
3020. So it is the Coast Guard that maintains and operates aids to navigation after they're installed; is that correct?
3021. **MR. AL FLOTRE:** That is correct.
3022. **MR. ROBINSON:** And has the Coast Guard at this point, in your knowledge, committed to the cost of operation and maintenance of the additional aids that might be put in place?
3023. **MR. CROWTHER:** Mr. Robinson, a question of how the costs of maintaining aids to navigation is funded -- was the topic of discussion earlier this week.
3024. **MR. ROBINSON:** I believe that was limited to the installation of aids to navigation. I'm talking about the operating and maintenance costs with respect to aids to navigation.
3025. **MR. CROWTHER:** Well your recollection is different than mine, but perhaps the witnesses could confirm, sir.
3026. **MR. MICHAEL COWDELL:** Can you repeat the question?
3027. **MR. ROBINSON:** My question was whether in anyone's knowledge -- any of the witnesses knowledge, has the Canadian Coast Guard committed to the cost of operating and maintaining additional aids to navigation that might be installed with respect to the Northern Gateway Project?
3028. **MR. MICHAEL COWDELL:** We don't have knowledge at this time of what the Coast Guard has or has not budgeted for, but -- yeah.
3029. **MR. JOHN CARRUTHERS:** Again, the most recent information was the Canadian Coast Guard will ensure that a system of aids to navigation, comprised of buoys, lights and other devices, to warn of obstruction and to mark location preferred shipping routes, is installed and maintained. So again, very consistent with what we had anticipated.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3030. **MR. ROBINSON:** And you appear to be reading from a document; can you tell me which document that is?
3031. **MR. JOHN CARRUTHERS:** It's information that was announced by the Canadian government in the recent -- recently.
3032. **MR. ROBINSON:** When you say announced by the Canadian government recently, you would mean on Monday?
3033. **MR. JOHN CARRUTHERS:** That is my expectation, yes.
3034. **MR. ROBINSON:** And on Tuesday you read into the record, somewhat over Mr. Tollefson's objections, what seemed to be a summary of those proposals of federal initiatives, and I think that's found -- if we might go to Volume 156, at lines 31946 to, I believe, it's 31955.
3035. So if we could try at 31946, and I think it starts here, it goes on for a bit about the -- what the Government of Canada announced on Monday.
3036. What was the source of the information that you read into the record on Tuesday?
3037. **MR. JOHN CARRUTHERS:** The information that I would have been working from was the background information that the Government of Canada had announced.
3038. **MR. ROBINSON:** And would those be the same documents that the Panel directed would be removed from the public registry on Tuesday?
3039. **MR. JOHN CARRUTHERS:** Yes. Well, they could be. I'm not sure of exact documents that were expected to be -- what were tabled, but it's a consistent issue.
3040. **MR. ROBINSON:** So in making the statements you made on Tuesday, were you making those statements and entering those as Northern Gateway's evidence?
3041. **MR. JOHN CARRUTHERS:** Yes, I was responding to a point that had been made that regulations change, and I was responding to the fact that as an example that the Government of Canada had announced some changes. Because

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

- Mr. Michel had mentioned that there's been a number of improvements in tanker safety but part of that went to changes in regulations. So my point was that that's -- we had an example of that type of activity.
3042. **MR. ROBINSON:** So were you entering it for the truth of the contents of those statements?
3043. **MR. JOHN CARRUTHERS:** I was entering it as an example of what we had heard as regulations change.
3044. **MR. ROBINSON:** So it was hearsay?
3045. **MR. CROWTHER:** Mr. Robinson, I suppose that you are putting to the witnesses a legal concept about hearsay evidence. Even if you are, you are well aware, sir, that this panel is not bound by the rules of evidence.
3046. **MR. ROBINSON:** Madam Chair, I'm going to ask for some direction here. I'm just seeking some clarification on whether a witness can read in a document of another party to these proceedings as their evidence and, you know, if so what weight will be given to that.
3047. If it's no weight to be given to it because they're just reading in someone else's evidence then I'll move on. If this is to be accepted as Northern Gateway's evidence then I'd like to question on it.
3048. **MR. CROWTHER:** Well, Mr. Robinson, you already are questioning the witnesses in respect of their evidence and I'd invite you to continue.
3049. Let's be clear, though, the Panel has made no direction that would preclude any witness from referring to public documents, and that's what the witnesses have done.
3050. **MR. ROBINSON:** And just to be clear then, if a witness refers to a public document and reads it into the record is it now evidence? That's the question I'm asking, Madam Chair.
3051. **MR. CROWTHER:** Well, Mr. Robinson, perhaps this discussion could wait for argument when all matters of weight of evidence would be argued.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

--- (A short pause/Courte pause)

3052. **THE CHAIRPERSON:** Thank you for the time for the Panel to consider things.

3053. Mr. Robinson, I wanted to confirm for everybody that all witnesses' responses are in evidence and then it's a matter of the weight of that evidence that is a subject for final argument. So I would invite you to continue your questioning on the evidence that's on the record at this point.

3054. **MR. ROBINSON:** Thank you, Madam Chair.

3055. Mr. Carruthers, at line 31946, which I believe is up on the screen, you state:

"...the Government of Canada [had] introduced new requirements for oil handling facilities..."

3056. Do you have any information on what those new requirements are?

--- (A short pause/Courte pause)

3057. **MR. CARRUTHERS:** I do not have specific information of their proposed amendments in terms of -- I was responding to what I had understood from their public announcement. So I have had no specific discussions with them about their plans. I was -- they had made an announcement and that's what I was referring to in terms of as an example of changes.

3058. **MR. MICHAEL COWDELL:** And I don't know if the -- I think the main intent of the press release was the fact that these requirements were going to be reviewed. And so much in the way we've been reviewing current requirements, they will too and look for improvements in the items that they mentioned in their press release.

3059. **MR. ROBINSON:** At line 31947, Mr. Carruthers, you said:

"...the number of inspections will increase to ensure that all foreign tankers are inspected on the first visit..."

3060. Can you tell how many additional inspections will be done under this

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

initiative?

--- (A short pause/Courte pause)

3061. **MR. JOHN CARRUTHERS:** Today, tankers would have an inspection on their first visit and as they've announced they will increase to ensure that all foreign tankers are inspected.

3062. Yes, so they are inspected on their first visit which is consistent with what they are today. They announced that they are going to increase the number of inspections.

3063. **MR. ROBINSON:** Also in that line, you state that:

“...more points will be designated for traffic control measures starting with Kitimat...”

3064. Can you tell me what additional traffic control measures will be installed at Kitimat?

3065. **MR. JOHN CARRUTHERS:** We would not know that, that's something I expect we'll have to have a broader consultation with industry and the B.C. Pilots and others with to finalize that.

3066. **MR. ROBINSON:** To the best of your knowledge, if any of the changes referred to in lines 31946, 331955 (sic) been passed by the Parliament of Canada?

3067. **MR. JOHN CARRUTHERS:** I don't know of the -- like the legal positioning of what they have announced. I do not know that.

3068. **MR. ROBINSON:** To the best of your knowledge, has the funding for any of these changes referred to in lines 31946 to 31955 been included in budgets of the federal government of Canada?

3069. **MR. JOHN CARRUTHERS:** That's not something I would typically look at in terms of the budgets of the Canadian government. I expect when they make their announcements they would have to ensure that's consistent with their budget plans.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3070. **MR. ROBINSON:** One would hope but in passing -- and I won't go there.

3071. Does Northern Gateway have any information on the operational reliability of aids to navigation? That is the percentage of time that aids to navigation are not operational due to, you know, power failures or other mechanical failure?

--- (A short pause/Courte pause)

3072. **MR. JOHN CARRUTHERS:** No, that is not information that we have?

3073. **MR. MICHAEL COWDELL:** But again, it may be worth emphasizing here though that there's many layers of mitigation when it comes to hazards to navigation. And I'd look to my colleagues to explain it in better detail than I probably can but you have the aids to navigation but you also have modern navigation systems on board the vessels.

3074. They have their own radar. You have the electronic navigation systems and you know, I think as we've discussed before for the near shore areas, because of the steep sides of the channels, you get good radar reception and it's -- the pilot has good visibility on board the ship of the radar picture of the channel.

3075. **MR. AL FLOTRE:** In 40 years of sailing on the coast, the record of the Coast Guard in quickly remedying failure of navigational aids has been excellent and they have -- there's a liability issue there. They call -- they quickly go to resolve any issue with a navigational aid.

3076. **MR. ROBINSON:** When you say there's a liability issue there, what do you mean by that?

3077. **MR. AL FLOTRE:** Well, if a vessel had an accident or a grounding, as a result of an un-working navigational aid, he would the ability to seek remedy from the Coast Guard for not properly maintaining the light.

3078. **MR. ROBINSON:** Thank you.

3079. Am I correct that after new aids to navigation are installed, it's important to update the navigational charts that indicate these aids?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3080. **MR. AL FLOTRE:** Yes, there's notices to mariners shipped out on a weekly basis and available on the internet to indicate any changes to the navigational aid system.

3081. **MR. ROBINSON:** The TERMPOL study B23-6, identified the need to establish new call-in points for reporting to MCTS. Has the Canadian Coast Guard established those new call-in points at this point in time?

3082. **MR. MICHAEL COWDELL:** That goes to the same point, it's the navigation aids. That's something that remains to be discussed and we're not aware of any new commitments made by the Coast Guard in that respect.

3083. **MR. ROBINSON:** Thank you.

3084. I'd like to refer specifically to the installation of new radar now and does Northern Gateway -- maybe I should start with, generally who is responsible for the installation of new radar coverage, generally, who is that done by?

3085. **MR. AL FLOTRE:** In past practices, all of these installations, coast radar or shore-based radar are installed and maintained and utilized by the Canadian Coast Guard.

3086. **MR. ROBINSON:** And just for clarity, does this then fall in the same situation as the navigation aids we've discussed? And that being, that if the Canadian Coast Guard fails to provide the funds for the installation of new radar installations, will Northern Gateway be committing to the cost of those new installations?

3087. **MR. JOHN CARRUTHERS:** As we have talked about, again because Northern Gateway would only be a portion of the shipping on the west coast of Canada, we would expect to have that conversation with the Canadian Coast Guard and they are open to it, and they should be aligned in terms of the need to have safe operations on the west coast so we expect that to be positive.

3088. But ultimately, if we didn't, we had to make a commitment to fund those if others weren't but I certainly do not expect that because it's in all of our interest to have safe operations on the west coast. And again, what we see would be -- these would be beneficial for broader than the Gateway Project but for all of those using the west coast, in fact, for all Canadians.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3089. **MR. ROBINSON:** But if it should come to it, are -- is Northern Gateway committing that they would not start up their operations without those additional radar coverage in place?
3090. **MR. JOHN CARRUTHERS:** We would put them in subject to the required approvals, yes.
3091. **MR. ROBINSON:** Thank you. And will you add that to your list of commitments?
3092. **MR. JOHN CARRUTHERS:** Yes, we're committed to that.
3093. **MR. ROBINSON:** Thank you.
3094. **MR. AL FLOTRE:** There is a point that we're missing here through, that all of the costs, these navigational aids, and other issues we were talking earlier, that the Coast Guard have, are not a cost item to the Coast Guard.
3095. All of these costs are covered by the user-pay system for all vessels transiting the coast pay a fee -- annual fee or quarterly fee or per visit fee and those fees are adjusted to cover the costs of the navigational aids.
3096. So the only decision the Coast Guard has to make is to be able to justify the need for these aids. So it's not a budget concern. It's -- they are going to be looking at the traffic patterns and if there's a need for these aids they'll put them in.
3097. **MR. MICHAEL COWDELL:** I think we also need to be reminded here that the commitments made by Northern Gateway are in addition to the current maritime regime on the west coast which currently sees all kinds of vessels using the routes that we've discussed from the Inside Passage to the Outside Passage, and includes tankers going to and from Kitimat that have been for years with the system as it is.
3098. So I think any improvements are obviously going to enhance the already very safe level of marine safety that we have today.
3099. **MR. ROBINSON:** Thank you.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3100. Captain Flotre, you said the aids would or the radar would be installed if the Canadian Coast Guard can justify the need for the aids. Who is it that they need to justify the need to?

3101. **MR. AL FLOTRE:** No, I don't know the process that the Coast Guard has for justification.

3102. **MR. ROBINSON:** Thank you.

3103. Similar to my question on aids to navigation, does Northern Gateway have any information on the operational reliability of radar systems? That is, percentage of time that systems are out because of power failure or other failure?

3104. **MR. MICHAEL COWDELL:** We don't have that information but I would note that many of these systems now come out with their -- with back-up redundancies available. So I mean those are things that obviously could be looked at.

3105. **MR. ROBINSON:** The Northern Gateway application, Volume 1, indicated that MCTS was moving to an automated vessel traffic reporting system. And just for my own clarity, can you tell me what was meant by "automated vessel traffic reporting system"? Is this the AIS system or was this referring to something else? I can take you to that reference if you'd like.

3106. **MR. MICHAEL COWDELL:** If you don't mind, that would be great.

3107. **MR. ROBINSON:** Yeah, it's Volume B1-3, Adobe page 64 to 65 and I would take it from that numbering that it's probably at the bottom of page 64.

3108. If we could go right to the bottom, please?

3109. Let me just see if I can find it in my own notes. It might be faster.

--- (A short pause/Courte pause)

3110. **MR. ROBINSON:** Sorry, I'm just not seeing it in my own notes either, so maybe I'll just move on.

3111. **THE CHAIRPERSON:** Mr. Robinson, would this be an appropriate

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

time to take a break? You could find ---

3112. **MR. ROBINSON:** That might be useful and I'll see if I can find that passage.

3113. **THE CHAIRPERSON:** That's great.

3114. Let's be back for 25 after 10, please. Thank you.

--- Upon recessing at 10:05 a.m./L'audience est suspendue à 10h05

--- Upon resuming at 10:22 a.m./L'audience est reprise à 10h22

3115. **THE CHAIRPERSON:** And we're all back, it looks like, and ready to go again.

3116. Mr. Robinson, please continue with your questions.

3117. **MR. ROBINSON:** Thank you, Madam Chair.

3118. And thank you for the opportunity to seek out my missing reference.

JOHN CARRUTHERS: Resumed

JERRY ASPLAND: Resumed

JENS BAY: Resumed

AUDUN BRANDSAETER: Resumed

DAVID FISSEL: Resumed

AL FLOTRE: Resumed

KEITH MICHEL: Resumed

STEVEN SCALZO: Resumed

THOMAS WOOD: Resumed

MICHAEL COWDELL: Resumed

HENRIK KOFOED-HANSEN: Resumed

**--- EXAMINATION BY/INTERROGATOIRE PAR MR. ROBINSON:
(Continued/Suite)**

3119. **MR. ROBINSON:** The reference is actually in B3-23 at page 27 and I think the quickest is just to read it and part of it answers the question I was asking.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3120. It says:

“In the near future, the Prince Rupert MCTS expects to begin operating a new automated vessel traffic reporting system (Automated Identification System [AIS]), which will collect much more detailed vessel movement statistics.”

3121. So I guess the answer to my first question has been answered. This was referenced to the AIS.

3122. I’m just wondering, does Northern Gateway have an update on what is the status of this given that, in this case, it says in the near future, Prince Rupert would be moving to it?

3123. Is this now fully operational?

3124. **MR. MICHAEL COWDELL:** It’s my understanding that it was supposed to be operational by this time but I think that’s probably a question better asked of the Canadian Coast Guard.

3125. **MR. ROBINSON:** Just for clarity, none of the Captains on the Panel know whether it’s operational at this point?

3126. **MR. CROWTHER:** I think there was a shaking of heads which won’t be reflected in the transcript.

--- (Laughter/Rires)

3127. **MR. ROBINSON:** I saw several no’s.

3128. Which leads me then to my next question which is to Captain Flotre: On, I believe it was Tuesday, it’s Volume 156, line 31968 -- we can go there if you want -- you said:

“...ships have [...], Automatic Information System, [...] So any vessel within 50 miles or of VHF radio range can see that ship and where it's going and what it's doing.”

3129. My question is: Are commercial fishing vessels required to have AIS?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3130. **MR. AL FLOTRE:** Not at -- at present time and that's relegated -- that's indicated by its size.
3131. And I'm not quite certain in the Canadian regulation when a fish boat gets to a certain size and it requires AIS, but most of the fishing vessels, from my experience, realize the value of AIS and -- and on most fish boats that you meet -- and I retired four years ago, so as late as four years ago -- most fishing boats that I met were reporting AIS to the -- to the traffic around them.
3132. So it's becoming very commonplace because it's very reasonably priced.
3133. **MR. MICHAEL COWDELL:** And this was described in Transport Canada's written evidence E09-06-15 paragraph 61.
3134. We don't need to bring it up, but they describe the -- the regulations for ships over 300 gross tons to be outfitted with automatic identification systems.
3135. **MR. ROBINSON:** Thank you, Mr. Cowdell.
3136. Just a similar question then: Does anyone on the Panel have any information on sort of the prevalence of AIS systems on recreational vessels?
3137. **MR. AL FLOTRE:** Again, from my experience, I would say a majority of the recreational vessels have instituted AIS which includes an AIS transmitter.
3138. There is another piece of equipment you can get that's a receiver only. So you can get all the information from the surrounding ships, but you're not transmitting information on your own ship.
3139. And, again, because of the low cost, it's -- it's growing in availability or -- there's more and more vessels out there utilizing the AIS system.
3140. **MR. STEVEN SCALZO:** I would -- I would just offer that Captain Flotre is right.
3141. Given the significant reductions over the last few years in the cost, even I have it on my own boat.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

--- (Laughter/Rires)

3142. **MR. ROBINSON:** Thank you for that clarification.

3143. **MR. THOMAS WOOD:** For your information also, anybody can get AIS information of ships worldwide on their websites.

3144. Basically, you can google it up and you can go to it and you can look for a ship.

3145. **MR. ROBINSON:** Just in passing, I'm aware of that as I followed my daughter sailing around Vancouver Island on the Pacific Grace last summer so...

3146. The Application states that only about 50 percent of marine traffic in the Open Water Area and Confined Channel Assessment Area reports to MCTS.

3147. Is that -- is it correct that, despite the changes that are going to be made to navigation aids and that sort of thing, that it'll still be about 50 percent of marine traffic that reports to MCTS?

3148. **MR. THOMAS WOOD:** Could you take us to the reference, please?

3149. **MR. ROBINSON:** I'm going to try.

3150. I believe it's at B23-3, Adobe page 75, and it's at the -- right above section 4.2.

3151. So if you go down a bit, Ms. Gilbert, it's the last paragraph there.

3152. It says "Up to 50 percent ...".

3153. It says:

"Up to 50 percent of the existing marine traffic ..."

3154. **MR. THOMAS WOOD:** Yeah, yeah, okay, the -- the bullet points immediately above there describe in detail which ones are not required to make reports to VTS and why.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3155. **MR. ROBINSON:** And my question then is: Is it reasonable to expect that those numbers don't really change that much once Northern Gateway is operating?

3156. That it'll still be at about 50 percent of the traffic that's non-reporting.

3157. **MR. AL FLOTRE:** And I can only answer that on my experience that, increasingly, those vessels who are not required to report to VTS, which is under 20 metres, and that is a good majority of the vessels when you consider the fishing fleet.

3158. But an increasing number of those are going to AIS systems.

3159. **MR. ROBINSON:** There was some discussion this week on -- on Anger at Anchorage and I don't want to revisit it again other than just a question about: how many ships of VLCC-size could anchor at Anger Anchorage?

--- (A short pause/Courte pause)

3160. **MR. THOMAS WOOD:** The size of Anger Anchorage is such that two such VLCCs could be safely anchored there.

3161. Some may argue that a third one could be at a stretch but two could safely be anchored there.

3162. **MR. ROBINSON:** Thank you, Captain Wood.

3163. Captain Flotre, I believe on Wednesday, in discussions around anchorages and things, you indicated that it is probably more likely that vessels would either hold or run slow. And I believe -- and this is the part I just want to confirm. I believe you indicated that if a vessel was holding that an escort tug would remain with the vessel.

3164. Is that correct?

3165. **MR. AL FLOTRE:** When a vessel is in the compulsory pilotage area there will always be a tug with that vessel, whether it's inbound; or, in the case of a loaded tanker, outbound, of course, two escort vessels would stay with the vessel.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3166. **MR. ROBINSON:** Okay. Thank you.
3167. **MR. JERRY ASPLAND:** Let me just be sure. There's one tug with in ballast, two with all loaded.
3168. **MR. ROBINSON:** And just so I'm clear, so if a vessel was holding somewhere within the compulsory pilotage area because of weather or traffic or whatever, if it was loaded it would have two tugs with it, if it was in ballast it would have one tug?
3169. **MR. JERRY ASPLAND:** That is correct.
3170. **MR. ROBINSON:** Thank you.
3171. And I believe, Captain Flotre, you also indicated that the most likely scenario would be that a vessel would proceed to berth.
3172. Is that correct?
3173. **MR. AL FLOTRE:** The most likely scenario -- and it's the organization of the vessel -- so it would have to be an extraordinary situation where the vessel would have to either hold or anchor, because the -- if there was an issue with the berth, that would probably be resolved and the ship would not go to the pilot station until he had clear passage to the berth.
3174. **MR. ROBINSON:** Okay.
3175. Does anyone on the Panel have any information on how many VLCC-size ships could hold in Kitimat Arm?
3176. That is, in sort of in the immediate vicinity of the terminal, without berthing?
3177. Sorry, that was kind of a broken up question.
3178. **MR. AL FLOTRE:** The -- it's not limited to a certain area. There's many options available to the ship.
3179. And as we have mentioned in our evidence, that they could go to -- one could go to anchorage in Kitimat Arm but have an assist tug or an escort tug

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

stay with it.

3180. But one could turn around and go all the way back to sea, or one could go find an area it wanted to hold up or down, you know, throughout the route, somewhere in the route.

3181. So it becomes an unrealistic number, there wouldn't be that many VLCCs as there is options for a VLCC to take.

3182. **MR. MICHAEL COWDELL:** I think the -- we explained in the last days that we don't expect a VLCC to come to Kitimat and then have to be anchored in Kitimat Arm.

3183. We have very low berth utilization and the vessels would be scheduled to arrive at a certain time. So I don't see that being a credible scenario.

3184. **MR. ROBINSON:** Would it be a credible scenario, for example, if you have, you know, ships at berth who cannot leave because of weather and an inbound ship who, as Captain Flotre said, needs to park somewhere?

3185. **MR. JERRY ASPLAND:** Perhaps at this point in time it would be important to kind of understand how scheduling is done.

3186. When Northern Gateway is apprised that there will be a load to go out or the condensate come in, that will be probably a month before or more before the ship ever comes close even into Open Water Area.

3187. The terminal then will begin the scheduling process, shall we say, and every couple of weeks they close the window so that the first -- at the one-month period they might say you have two weeks to get -- a two-week window to get to the dock. When you get to the 15-day period, it's closed to one week, and then when you're five days out it's then a matter of hours.

3188. That then allows the terminal to schedule how they're going to bring ships up. There is no intention to start a ship up from the pilot station if we know there's not a berth available. It could be on the way, though, that there could be a delay somehow in loading, or there could be a weather slow down and, in that case, the ship on its way up will, in fact, then slow.

3189. We have no intention to get many ships up in the Kitimat Arm. They

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

should be slowed as they come up the channel.

3190. I think it also should be said that no ship, loaded or in ballast, will even start or leave unless they're tug escort is available.

3191. **MR. ROBINSON:** Thank you.

3192. I just have a quick question around -- this is meteorological and oceanographic monitoring equipment, and it's referred to in the QRA. It says:

“Meteorological and oceanographic monitoring equipment will be installed at the Kitimat terminal and at select points along the shipping routes.”

3193. Am I right, that's to be installed and operated by Northern Gateway?

--- (A short pause/Courte pause)

3194. **MR. ROBINSON:** Madam, if you want to bring that, it's B23-34, page 48.

3195. And it's right under “Metocean Monitoring System”. Yes, thank you.

--- (A short pause/Courte pause)

3196. **MR. MICHAEL COWDELL:** Yes, so the weather stations that we're talking about here, the weather equipment at the terminal and site points along the route, the intention there was that those were project initiatives.

3197. **MR. ROBINSON:** Thank you.

3198. Has any determination been made of exactly what sort of equipment and -- and locations will be installed?

3199. **MR. DAVID FISSEL:** Just to try to provide a little more information around that. The -- this type of metocean monitoring system that we're looking at here is -- is very standard in any marine terminal and there are certainly industry best practices for that type of equipment that are used around the world, and that -- that type of system would be used here.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3200. As for the details, I think that would -- that would be best determined in -- in detail once the project is further along in its process.
3201. **MR. ROBINSON:** Thank you, Mr. Fissel.
3202. The -- the application states that -- you know -- operating limits will be set for wave height and wind speed and current and visibility. And I understand from the discussions over this week that these limits have not yet been set and -- and will be the subject of more detailed planning. Is that correct, is that a good summary of those discussions I've heard this week?
3203. **MR. MICHAEL COWDELL:** Generally speaking, I think that's correct.
3204. **MR. ROBINSON:** So -- so what I'm curious about is how you -- you estimate things like -- like delayed times and -- and availability of the terminal in terms of operating conditions and that sort of thing.
3205. How do you estimate sort of the availability of the whole system when -- when you haven't yet set the operating limits? And I can provide -- I can clarify a little bit if you want me to but...
3206. **MR. MICHAEL COWDELL:** Sure. Go ahead and ---
3207. **MR. ROBINSON:** For as examples, let's -- let's take the terminal and the berth. If you've not yet set the operating limit, say wind or wave for berthing, how do you determine the availability of the terminal, you know is it 2 percent, is it -- you know, is it shut down 2 percent of the time, 5 percent of the time, 10 percent, 25 percent because of weather?
3208. Can you -- can you establish that number in the absence of the operating conditions?
3209. **MR. MICHAEL COWDELL:** I'll try to explain. We -- there -- in TERMPOL and in the application there's -- there's a possible range of environmental operating limits that have been set out for the terminal and other -- other parameters.
3210. The only reason those haven't been finalized is because the terminal hasn't been designed in detail. We don't have the detailed design of the mooring

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

- hooks done, we don't have the detailed design of the pendering system done.
3211. But when you -- when you take the -- the range of -- of potential limits and compare it to the weather data that -- that Mr. Fissel can speak to, you can see that the project is feasible.
3212. We also know from the current operations in Kitimat that because of -- of the weather in the area and the fact that the winds are generally parallel to the channel that there's rarely delays in berthing ships in Kitimat and that -- that those terminals have operated very successfully in that -- in that location for many years which is one of the primary reasons that Kitimat is -- is such a good port location.
3213. **MR. ROBINSON:** I believe you said you would take into consideration the range of potential limits. So -- so Northern Gateway does -- does Northern Gateway have in mind a -- a range of potential limits for -- let's start with berthing?
3214. **MR. CROWTHER:** Just to begin, Mr. Robinson, I think Mr. Cowdell indicated that a range of limits in the application, range of indicative limits or words to that effect. So I think that was the -- the fairer characterization of his evidence.
3215. **MR. ROBINSON:** So is there -- is there a range of limits in -- in the application that -- did I miss that somewhere?
3216. **MR. MICHAEL COWDELL:** It depends -- depends what you're referring to but yes, there are indicative ranges are -- are provided throughout TERMPOL in the application and the supporting documents.
3217. **MR. ROBINSON:** So throughout the application in TERMPOL documents I see -- you know -- reference to -- you know -- things being -- you know that things might be operational at 30 -- 30 knot winds or 40 knot winds, those sorts of things and so is that what you mean by a range, is those kinds of things that are referenced in -- in the various application documents, and the TERMPOL document?
3218. **MR. MICHAEL COWDELL:** Can you repeat that question?
3219. **MR. ROBINSON:** Well, I -- you're telling me there's a range and that it's in the documents. And in my reading of the documents, what I see is I

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

see references from place to place in the document, you know, to things like you know this might be difficult above 40 knots, you know, this is doable at 30 knots.

3220. But I -- I can't recall that I saw somewhere in the document that says the range of potential operating limits for the berth is this. I may have missed it but I don't think I saw that.

3221. **MR. MICHAEL COWDELL:** I'm still not 100 percent sure what the question is.

3222. **MR. ROBINSON:** Maybe I could just pose the question. Is there somewhere in the documents that I have missed where it states the range of operating conditions for berthing?

--- (A short pause/Courte pause)

3223. **MR. MICHAEL COWDELL:** So for example, if we could -- if the Regulatory Officer would mind bringing up Exhibit B23-13, Adobe page 39.

3224. And if we just scroll down to section 4.6.8 there, you can see that there are some preliminary environmental operating values provided on that page.

3225. And as it says below:

"The above estimated values are considered preliminary and are subject to change in consultation with pilots and pending detailed operational mooring analyses which will be conducted during the detailed design phase of [the] project."

3226. So this ---

3227. **MR. CROWTHER:** Mr. Cowdell, you might have to go a little bit slower for the Court Reporter.

3228. **MR. MICHAEL COWDELL:** I apologize.

3229. So again, this is what I've been trying to explain, that:

"The above estimated values are considered preliminary and are subject to change in consultation with pilots and pending

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

detailed operational mooring analyses which will be conducted during the detailed design phase of this project.”

3230. And above you can see some preliminary limits have been provided for different operations.
3231. **MR. ROBINSON:** Thank you.
3232. And if we could just keep that -- that section right there on the screen.
3233. So -- so would these be the numbers that Northern Gateway has used to -- to get back to my first question -- has used to estimate sort of availability of berthing operations and the operation of the terminal, you know, as whether it's going to be shut down 2 percent, 5 percent, 10 percent??
3234. **MR. MICHAEL COWDELL:** Yes, these values are -- are within the range of limits that we've taken into consideration when looking at the operation of the terminal.
3235. And again, I just emphasize that the shutdown times would be relatively infrequent and Mr. Fissel can talk more about that, but when you take these values and compare them to the wind and weather data that has been provided you can see -- make that determination as well.
3236. **MR. MICHAEL COWDELL:** I can elaborate a bit. For example, if we take the lowest wind speed there which is "Maximum Wind Speed, Tug Assisted Berthing for larger tankers", 30 knots or 15 metres per second and you compare that with the metocean data that's been tabled in Exhibit B17-18, and you look at the 15-metre per second for threshold for wind speeds from the Nanakwa Shoal Environment Canada weather buoy only .3 percent of the winds measured over the last 20 years at Kitimat Arm have exceeded that 15-metre per second wind speed.
3237. So for that one criterion, it gives you an idea that the downtime would be very infrequent based on that particular criterion. But as Mr. Cowdell's said and I'm sure others on the panel could testify, it's a combination; there's many factors that go into setting environmental operating limits and not all of those are clearly determined yet as the project progresses.
3238. **MR. ROBINSON:** Thank you.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3239. I note here, with respect of berthing, that there's -- given that these are -- understanding that these are not final, but a different limit for -- depending on the size of tanker.

3240. Do you expect that same sort of differential will occur in terms of operating conditions in the open water area and in the confined channel area that there's a different -- that you will set different operating limits for different sizes of ships?

3241. **MR. MICHAEL COWDELL:** So that wouldn't be -- always be the case. You -- we have to talk about a specific operating criterion to have that discussion about whether there'd be different operating limits for different classes of vessel.

3242. **MR. ROBINSON:** So as a general statement you can't say, for example, that wind speed that there -- in the open water area and confined channel assessment area that there would be a different operating limit for different sizes of vessels?

3243. **MR. AL FLOTRE:** I guess without being specific, I'd like to give an example of how a ship deals with wind.

3244. Wind is only one of several factors that act upon the ship's hull. The wind -- the actual force exerted on the hull of the ship is the total of the square foot of windage area available and as that force is subtracted by the surface area of the vessel underwater because to move the ship sideways by a wind on the side, you have to beat the resistance of the underwater. And in this case, say when wind was on the beam as we say or on one's side, the ship would have to move bodily sideways in order to overcome the resistance of the water on the under-hull portion.

3245. When a ship is underway -- that would be a ship in a static condition not moving -- as soon as a ship gets underway, you introduce the inertia force of the ship and -- or the speed of the ship. And now you have to combine the resultant vector of that force of the wind but also include the much greater vector which is the vessel moving through the water. And when you combine those vectors geometrically you get -- end up with a very small vector in the actual movement of the ship.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3246. So when a ship is underway and when a ship is loaded, it gets very little effect of the wind and it is easily corrected by altering the direction of the inertia force. So if you change your course slightly in towards that thing, you can easily overcome the force of the wind. And this is called applying leeway.

3247. So to come up with a number for a specific ship or a specific size of ship you have to take into consideration all of those forces acting on the ship. And wind is not a big -- when -- once a ship is underway, wind is a very minor -- has a very minor effect on the course and speed and gives the ship very little problem.

3248. So to come up with an answer about -- you know, you have to look at each ship and what it's loaded and ballasted condition is when you make that assumption. And that's going to require a lot of study and that's one of the reasons that no direct limits have been set at this time.

3249. **MR. ROBINSON:** Thank you for that explanation.

3250. Obviously the operating limits will be a combination of not just wind but it would be -- I image there'll be operating limits for wind and wave and visibility.

3251. In your experience -- and I guess I'm asking Captain Flotre, but anybody else weigh in -- which is likely to become limiting first? The -- I'm going to -- with reference to the tanker versus tugs, do the conditions become limiting for tugs more likely than tankers or tankers more likely than tugs? I guess I'm asking which is most susceptible to these, you know, sort of operating conditions?

3252. **MR. MICHAEL COWDELL:** Could you be a bit more specific and perhaps can we talk about one condition at a time?

3253. **MR. ROBINSON:** I could I suppose. So let's start with waves I guess then. Which is likely to become a more, you know -- which vessel is likely to be the most limited in terms of wave heights it can handle, the tug or the tanker?

--- (A short pause/Courte pause)

3254. **MR. AL FLOTRE:** Could you repeat the question please?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3255. **MR. ROBINSON:** I hope so. Really what I was asking is trying to get an idea of, you know, high wave situation. Which -- you know, which vessel is going to be the most constrained in terms of operating conditions, is it the tug or the tanker?

3256. **MR. AL FLOTRE:** Well, in the compulsory pilotage areas you're not going to get those extreme wave conditions. So the issue is not applicable in the area -- your question is not applicable in the compulsory pilotage areas for this particular project because they're in protected waters.

3257. So the tankers go across the world and experience all kinds of conditions and they can handle it fully. So once they're in the open water areas and beyond, it's not a -- it's a non-issue.

3258. So they -- the other point is really the boarding of the pilot and that may be a limiting factor. But in the experience, and the letter of comment from the Pilotage Authority backs it up, that that is seldom a problem. They're always able to -- because the ship turns and makes a lee so the pilot can disembark and/or you use helicopters.

3259. So any of the three issues mentioned in your question do not present a problem that I could foresee.

3260. **MR. ROBINSON:** Just for clarity, are you saying within the compulsory pilotage area that a tug would never experience a wave height that would be limiting or dangerous?

3261. **MR. AL FLOTRE:** I'll give that to Mr. Scalzo.

3262. **MR. STEVEN SCALZO:** Yes, within the compulsory pilotage area, there is no weather condition that would limit the operation of the tug.

--- (A short pause/Courte pause)

3263. **MR. MICHAEL COWDELL:** Sorry for the delay; I'm just looking for a reference here.

--- (A short pause/Courte pause)

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3264. **MR. ROBINSON:** Was there something that you were going to add
or...
3265. **MR. JERRY ASPLAND:** Would you just repeat once more? Sorry.
3266. **MR. ROBINSON:** Well, I had finished my question and Dr. -- Mr.
Scalzo had given me an answer. I was going to move on to my next question.
3267. **MR. JERRY ASPLAND:** Oh.
3268. **MR. JOHN CARRUTHERS:** Yes, please go ahead.
3269. **MR. ROBINSON:** Okay. Thank you.
3270. Mr. Scalzo, are you familiar with the West Sea Otter buoy in Hecate
Strait?
3271. **MR. STEVEN SCALZO:** Could you repeat that again? I think you
said -- was it a buoy you said?
3272. **MR. ROBINSON:** I believe it's called West Sea Otter buoy in
Hecate Strait.
3273. **MR. STEVEN SCALZO:** No, I'm not specifically but I'm sure Mr.
Fissel is.
3274. **MR. ROBINSON:** Okay. Are you sir?
3275. **MR. DAVID FISSEL:** Well actually, could you give us the
Environment Canada designation for that buoy?
3276. **MR. ROBINSON:** I cannot.
3277. **MR. DAVID FISSEL:** Oh.
3278. **MR. ROBINSON:** I just have this information. I know it's in Hecate
Strait. That's all I know.
3279. **MR. DAVID FISSEL:** Okay, there's two Environment Canada
weather buoys in Hecate Strait; one is more to the south and one is north of

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

Caamano Sound. I suspect that name might be a local name.

3280. **MR. ROBINSON:** It could be.

3281. **MR. DAVID FISSEL:** And I'm not sure I'd want to assign which one it is.

3282. **MR. ROBINSON:** Let me go straight to my sort of point then, is -- my information is that the maximum wave height recorded at that buoy in 2012 was 26.2 metres.

3283. So for Mr. Scalzo, would a tug be able to operate at a wave height of 26.2 metres?

3284. **MR. STEVEN SCALZO:** The escort tugs that have been designed for this project meet all standards for ocean operation and service. So the tugs are capable of operating in severe weather conditions.

3285. **MR. ROBINSON:** And are they capable at operating at a wave height of 26.2 metres?

3286. **MR. STEVEN SCALZO:** They're capable of operating safely in severe weather conditions. The wave heights have been taken into consideration for the design of the vessel. Now, they're safe to operate in that condition. They may be operating slow; they may be hooved too. The captain of the tug will take what strategy is important to them to make sure that the vessel and the crew is safe.

3287. But with today's weather forecasting and operating conditions, you certainly wouldn't intentionally go out into a storm with those kinds of conditions.

3288. **MR. ROBINSON:** Thank you.

3289. I'm going to move on now to -- this is errata that was filed, B210-2, which is errata -- and I want to go to page 4, Ms. Gilbert and errata number 7 on that page. It was Adobe page 4, and it's errata number 7, which is right below there.

3290. Now, just to paraphrase this errata, originally -- the original document

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

suggested that visibilities less than 1 nautical mile were problematic and that the operational visibility limits for berthing and de-berthing would be in the range of 1 to 2 nautical miles. And then the correction in the errata suggested visibilities less than 1 nautical mile were historically problematic.

3291. I take it that it's Northern Gateway's position that these are not problematic. These -- that visibilities less than 1 nautical mile are not problematic anymore because of the electronic aids and radar and things that we've discussed today. Is that correct; is that why that correction or change was made?

3292. **MR. MICHAEL COWDELL:** Yes and I'd ask Captain Flotre to add to that.

3293. **MR. AL FLOTRE:** Tankers around the world operate in thick fog. Modern tankers have two -- have a requirement to have two operating radio -- radars with separate power sources. Likewise, on the ECDIS system, they have to have two completely independent ECDIS systems operating on separate power sources.

3294. As well, you have your two escort tugs and some -- in loaded cases or in ballasted condition one who again has redundant radars and ECDIS systems on board. And as well as that, the vessel is monitored by the MCTS system in Prince Rupert on the AIS system and there are shore based radars if available.

3295. So a visibility is not a concern for the tanker that it can't operate. It certainly would reduce speed, subject to traffic conditions and vessels in the area, but can still continue to operate in very dense and limited to zero visibility.

3296. **MR. ROBINSON:** Thank you.

3297. Given that the suggested operational limit for berthing drops from 1 to 2 nautical miles in the original document to 500 metres, so as much as a four-fold decrease in the correction, is -- are there any plans to revisit the conclusions and recommendations of the TERMPOL process, given that that information was not in front of the TERMPOL process?

3298. **MR. MICHAEL COWDELL:** We see no reason to revisit the voluntary TERMPOL process. Based on the information that Captain Flotre has provided, I think the berthing operations can be carried out quite safely at the visibilities that he's discussed.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3299. **MR. ROBINSON:** Did you test that -- those assumptions with any of the participants in the TERMPOL process?

3300. **MR. MICHAEL COWDELL:** Perhaps you could clarify.

3301. **MR. ROBINSON:** I guess what I'm asking is you're saying that Northern Gateway has decided that that change is not significant in terms of the conclusions of the TERMPOL process. I'm wondering if you tested that with any of the other participants in the TERMPOL process.

3302. **MR. MICHAEL COWDELL:** No, we have not.

3303. **MR. ROBINSON:** Thank you.

3304. **MR. AL FLOTRE:** One piece of electronics I failed to mention that I observed being used in the port of Long Beach -- and maybe I'll ask Captain Aspland to extend the information on it. But it's a pilot accessory he brings aboard with him called docking systems, utilizing two different AIS receivers which makes it extremely accurate. And in the port of Long Beach it's necessary because the clearances of the large tankers to turn within the very small port are such that the visual eye cannot discern the distances.

3305. So I'll turn that over to Captain Aspland, he could continue.

3306. **MR. JERRY ASPLAND:** Yes, that's true, that through the use of electronics, Ektus, GPS, they are in the Port of Long Beach docking ships that the visibility is very, very limited.

3307. I think that they do take VLCCs in there but I -- the large, large container ships are -- can fit into the large ship situation. Having witnessed a docking on a large container ship, as the pilot manoeuvred in with his individual docking system, we could read the absolute distance between the bow and the stern of the other ship. He had control, knew exactly the angle and what the tug boat was doing.

3308. So this will be expanded, I'm sure, to other ports, and it's very, very safe.

3309. **MR. ROBINSON:** Thank you. I warned you that I'd be a little

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

fragmented. I just want to bounce around a little bit, back the alternative routes question again.

3310. If Northern Gateway is aware that a vessel has travelled to the terminal by an alternate route -- that is, you know, they've used one of the areas you've committed that they won't use -- and it's not for an exceptional circumstance, for some reason they've chosen that route -- would Northern Gateway refuse to load or unload that vessel knowing that it took a route that was not one of the approved routes?

3311. **MR. MICHAEL COWDELL:** I think that was already answered previously.

3312. **MR. ROBINSON:** And the answer was, if you don't mind?

3313. Would they load or unload? Would they refuse to load or unload?

--- (A short pause/Courte pause)

3314. **MR. AL FLOTRE:** The problem with your supposition is that it can't happen.

3315. The vessel is under the control of the MCTS from 50 miles off the headland -- so 50 miles off of Haida Gwaii -- until it gets to the pilot station and, at that time, the pilot takes over the navigation and he would use the routes designated by -- as we have designated in the evidence.

3316. So it's supposing something that has no possibility of happening.

3317. **MR. ROBINSON:** I'll leave it at that.

3318. B23-34, the Marine Shipping Quantitative Risk Assessment. It's B23-34, page 145. If we get there it's the fourth bullet.

3319. But I'll carry on with just paraphrasing. I won't even paraphrase I'll read. It says:

“While in the past small shuttle tankers may have manoeuvred around recreational or fishing activities, this is less likely to be the case with large tankers.”

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3320. So would you agree that there is little to no experience with large tankers manoeuvring around recreational and fishing vessels in Douglas Arm and Kitimat Channel?

3321. **MR. AL FLOTRE:** There is no issue there and hasn't been for many years.

3322. Actually, the fishing in that particular area is very limited. Most of the fishing occurs around the mouth of the Skeena River in Prince Rupert and up by the Nass. So although there are occasionally fish boats working there, it is quite limited and there is ample room to deal with the amount of traffic that you would experience in that area.

3323. **MR. ROBINSON:** I wonder, Ms. Gilbert, I apologize because I don't think it was on my list of exhibits, but could we go to B9-40, which is the marine fisheries TDR?

3324. Thank you. You're amazingly fast.

3325. And page 28, and the third paragraph on that page. Right there. I think that.

3326. It says:

"The salmon fishery is open for specified times over an approximate four- to six-week period from mid to late summer. Commercial fishing interviewees estimated that between 150 and 200 vessels...in FMA subarea 6-1..."

3327. And just for reference, I think if we go up or down one page we get a map that shows 6-1, but I could be wrong. Let me just see if I can ...

--- (A short pause/Courte pause)

3328. **MR. ROBINSON:** I won't get it but just 6-1, in my recollection, is basically the head of Douglas Channel in Kitimat Arm.

3329. Would you agree with that?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3330. **MR. AL FLOTRE:** I'm not familiar with that specific area.
3331. **MR. DAVID FISSEL:** Just to help out, if you go to Adobe page 24, I think you'll see the map.
3332. **MR. ROBINSON:** Great. Thank you. Thank you, Mr. Fissel.
3333. Yeah, this is the map I was referring to.
3334. So I think if we can enlarge it, it shows that 6-1 is sort of a Kitimat Arm area. You have to go up sort of more to the top right. Yes, thank you. And if you can make it large enough that we can read the little red number that's in the middle of the channel. Yeah, so there I can read it, 6-1 here now. I don't know if you can on the screen.
3335. So were you aware when you gave your answer, Dr. Flotre (sic), that there can be 150 -- or Captain Flotre, when you said -- were you aware there could be 150 to 200 vessels in the head of Douglas Channel during the fishing season?
- (A short pause/Courte pause)
3336. **MR. AL FLOTRE:** Well, I'm not familiar with the source of the information. I have to rely on personal experience.
3337. I first went into Kitimat on tug and barge in 1967 and, through my years on board tugs, I transited the route often. When I became a marine pilot it -- Kitimat at that time was a very busy port and numerous trips through the summer or the fishing season and never saw that number of fish boats in Douglas Channel.
3338. But the -- the issue is we transited Johnson Strait with 1400 fish boats when we were operating the cruise ships, cargo vessels and successfully. Not totally without incident, certainly no loss of life but some damage to gear.
3339. Did that for many years until the fishery died off to now where it -- it's only minimal fishing traffic anywhere on the Coast.
3340. So I'll turn it over to -- because the process the pilots had at that time was -- was the fishermen's liaison committee which was very valuable in setting out protocols and procedures to use while ships were interacting with fish boats.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3341. So I'll turn it over to Mr. Carruthers at this point.
3342. **MR. JOHN CARRUTHERS:** Yes, regardless, we have -- we have -- looking to establish a Fishing Liaison Committee to the extent that there is interaction that we could make that a two-way communication, education to reduce any kinds of negative interactions.
3343. So if they're low, we'd look to make them lower through the Fishing Liaison Committee.
3344. **MR. ROBINSON:** Thank you.
3345. Captain Flotre, on Tuesday, Mr. Tollefson referred you to the grounding of the Hanjin Geneva which was a -- a grounding here at Price Rupert in November of 2012.
3346. And you indicated in response to questions from Mr. Tollefson that you had first-hand knowledge of that event.
3347. Did you observe that event?
3348. **MR. AL FLOTRE:** No.
3349. **MR. ROBINSON:** So how did you obtain your knowledge of -- of that event?
3350. **MR. AL FLOTRE:** I received that information from Captain -- any rate, the President and CEO of the Pacific Pilotage Authority, Captain Obermeyer.
3351. **MR. ROBINSON:** Thank you.
3352. And you said in reference to that event that the -- that the tanker captain was having difficulty getting the fishing boat to comply.
3353. Can you elaborate a little more on what the nature of that difficulty was?
3354. **MR. CROWTHER:** Subject to the clarification, Mr. Robinson, that is clearly was not a tanker which is the word you used in your question.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3355. **MR. ROBINSON:** Well, let's -- let's see what Mr. Flotre said at the -- Volume 156, line 31854.

3356. **MR. AL FLOTRE:** So I'm -- I'm not -- I have not heard a recording -- the radio communications were recorded at the time.

3357. So I was given a summary of the recording that indicated that the pilot for some time had been trying to organize a safe passage with this vessel and because the vessel was not complying with the requests of the pilot, it ended up in a position where he had to make a choice between running over the fish ground -- boat or going aground.

3358. Fortunately, he was aware that there was a sandbar that he could go up on and chose that option rather than -- than running over the fish boat.

3359. **MR. ROBINSON:** Yes. Thank you.

3360. And thank you, Mr. Crowther

3361. **MR. MICHAEL COWDELL:** But keep in mind, though, that -- that there's options available to -- to the tankers that would be calling at Kitimat that maybe weren't available in that situation.

3362. And again, the -- the full findings of that incident haven't come out but we will -- we will have one or two escort tugs with the tankers in the Confined Channel Area and there may also be a whale spotting boat ahead of the tanker.

3363. So there's -- there's other means to -- to scout out vessels ahead of the tanker and to slow down if need be to avoid a similar incident occurring.

3364. **MR. ROBINSON:** Thank you for that.

3365. And, to Mr. Crowther, thank you, I stand corrected. It was not a tanker.

3366. But the nature of my question was really around the -- the issue of communication and -- and if I heard you correctly, Captain Flotre, you're indicating that there wasn't a problem with radio communication, you know, it wasn't that they weren't able to talk to the fishing boat, it was that the fishing boat

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

captain was not complying.

3367. Is that -- is that your understanding?

3368. **MR. AL FLOTRE:** My understanding is that it was not a -- like an order from the pilot but giving him options to -- to take to avoid the close-quarter situation.

3369. It's also important to note that that area was an area where they weren't compelled to make a 90 degree turn, there was a buoyed hazard in that vicinity and, of course, the sandbar to starboard.

3370. So that particular situation is not duplicated anywhere on the tanker routes to Kitimat.

3371. **MR. ROBINSON:** But the situation -- correct me if I'm wrong but the situation of a -- of a fishing boat captain not responding to a request for certain actions that could occur anywhere?

--- (A short pause/Courte pause)

3372. **MR. AL FLOTRE:** I'll -- I'll have to ask you to repeat that question.

3373. **MR. ROBINSON:** Well, I believe you're referencing there were certain things about this -- the Hanjin Geneva situation which were geographic and that it didn't have choices as to where it could go and that.

3374. **MR. AL FLOTRE:** Yeah.

3375. **MR. ROBINSON:** But I'm asking the question is: The situation of a fishing boat captain not responding to the larger vessel's captain's instructions that, in fact, could happen anywhere; could it not?

3376. **MR. AL FLOTRE:** Anything could happen anywhere, you know, so I can't dispute that.

3377. But you have a certain expectation for someone operating a vessel to comply with the ordinary practice of seamen and, in this case, he -- the fish boat did not.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3378. **MR. ROBINSON:** Would your statement that “anything could happen anywhere” apply to a -- an inbound tanker to Northern Gateway taking one of the alternate routes that are prohibited?
3379. **MR. CROWTHER:** Mr. Robinson, that’s clearly an unfair characterization of Mr. Flotre’s evidence.
3380. **MR. ROBINSON:** I’m just quoting back to him what he said, was that anything can happen anywhere.
3381. I don’t think that’s unfair.
3382. **MR. AL FLOTRE:** Well, I think we were referring to a -- an incident between a fish boat and a -- and the pilot -- ship.
3383. I wasn’t indicating to anybody using an -- a route other than the designated routes. And I already made -- stated that that question you had about the -- the alternate routes that it wouldn’t happen.
3384. **MR. ROBINSON:** Thank you.
3385. The Application lays out the distribution of ship sizes as estimated -- and I understand that these may change but -- as 50 VLCCs a year, 120 Suezmax, 50 Aframax, has that estimate changed at all since that was given in the -- in the Application?
3386. **MR. MICHAEL COWDELL:** I think I already answered that question previously.
3387. **MR. ROBINSON:** And for simplicity, would it be that that’s unchanged?
- (A short pause/Courte pause)
3388. **MR. MICHAEL COWDELL:** That was the forecast at that time for -- for that particular assessment, yes.
3389. **MR. ROBINSON:** And I guess that’s what I’m asking is you’ve not made another forecast since then?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3390. **MR. MICHAEL COWDELL:** No.

3391. **MR. ROBINSON:** Thank you.

3392. The TERMPOL studies indicate that the largest vessel that has travelled into Kitimat was, as of the date of the study, 50,000 ton dead weight -- dead weight tons.

3393. Is that information still accurate, in that, have any larger vessels travelled to Kitimat, to the best of your knowledge?

3394. **MR. AL FLOTRE:** Not to my knowledge.

3395. **MR. ROBINSON:** Thank you.

3396. A VLCC maybe up to 320,000 tons dead weight -- dead weight tons; is that correct?

3397. **MR. MICHAEL COWDELL:** Yes, that's correct.

3398. But going back to your previous response, the -- the purpose for completing the TERMPOL submission and the many simulations that were carried out and -- and the other studies was to determine that the routes are indeed viable for vessels up to VLCC size beyond the -- the 50,000 dead weight ton vessels that have called at Kitimat previously. And the waterways provide, I think as we've been discussing this week and throughout our TERMPOL submission, and as Transport Canada has said in their review of our TERMPOL submission, these -- these waterways are suitable for the design vessels including 320,000 deadweight tonne VLCCs.

3399. **MR. ROBINSON:** Thank you. All I was confirming is that the largest vessel that has traveled to date was 50,000 tonnes or less.

3400. Are there tankers greater than 320,000 deadweight tonnes currently in service?

3401. **MR. MICHAEL COWDELL:** Yes.

3402. **MR. ROBINSON:** Is Northern Gateway committing that tankers then -- greater than 320,000 deadweight tonnes will not be permitted to load or unload

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

at the Kitimat Terminal?

--- (A short pause/Courte pause)

3403. **MR. MICHAEL COWDELL:** Can you repeat the question please?

3404. **MR. ROBINSON:** Is Northern Gateway committing that tankers greater than 320,000 deadweight tonnes will not be permitted to load or unload at the Kitimat Terminal?

--- (A short pause/Courte pause)

3405. **MR. MICHAEL COWDELL:** No, the -- the intention's not to make that commitment. The -- the design vessel for the marine terminal as it stands right now is a 320,000 deadweight tonne vessel. It's -- it's possible that vessels slightly larger than 320,000 deadweight tonne because there are VLCCs, say, to 330,000 deadweight tonnes, could -- could call at the terminal and the terminal may be designed for that during the detailed design phase.

3406. But in terms of the other classes of tankers, such as ULCC, no, those would not be calling at the terminal.

3407. **MR. ROBINSON:** Thank you.

3408. Mr. Bay, did FORCE Technologies run any simulations of tankers greater than 320,000 deadweight tonnes?

3409. **MR. JENS BAY:** We took a list -- sorry, we took a look at the list of design ship that Northern Gateway wanted to use and we made a search through our database of ships and provided a list to Northern Gateway.

3410. At the time, we did not have a 20 -- sorry, we did not have a 320,000 deadweight tonne tanker, but we did have a 340,000 tonne tanker and it was decided to use that a little bit larger ship for the simulations. Also, with regard to the Aframax, the design ship was 100,000 tonne and the closest we had was 110,000 tonne Aframax, so the ships were slightly larger than design ships.

3411. **MR. ROBINSON:** Thank you.

3412. **MR. MICHAEL COWDELL:** But to put it in perspective, we're

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

- only talking a fairly small difference in -- in design vessel here, somewhere in the neighbourhood of 5 percent, so I don't think that would affect the -- the outcomes of the -- the studies that we have completed to date.
3413. **MR. JENS BAY:** And I can comment on that. The -- the experience we have with the many studies we have done and I have, as I said earlier, done about 80 studies over 20 years together with FORCE Technology captains and we are often being asked, well, what is the difference between a 300,000 and a 320 and a 340,000 tonne. The practical implication is that there is no big difference.
3414. There might be a scientific difference. You can go in and do a very close study, but in practice, it doesn't matter once you are up in that range. There has to be a bigger difference. There's a difference between the 200,000 tonne and a 300, but when we're talking about plus minus 20,000, it doesn't have a practical implication.
3415. **MR. ROBINSON:** Thank you for that clarification.
3416. I have a question now, turning to the -- the vessel nomination process, and I just -- this is only because I was a little confused about who actually nominates the ship. Because I thought I heard over the week at one point saying the -- the oil company who has arranged the charter or the shipper who has arranged the charter nominates the ship, but then I thought I heard at one point that -- that Northern Gateway would nominate the ship, but I just wonder if you could clarify which it is of those -- those two.
3417. **MR. JERRY ASPLAND:** Northern Gateway will not nominate the ship.
3418. **MR. ROBINSON:** Okay. So Captain Aspland on -- I believe it was Tuesday or it might have been Wednesday, you said that Northern Gateway must be part of OCIMF in order to request the SIRE report; is that correct?
3419. **MR. JERRY ASPLAND:** That is correct. You must be a member to request that, the SIRE report on a particular ship.
3420. **MR. ROBINSON:** So just for clarity then, so as the process, the shipper -- the shipping company, the oil company will tell Northern Gateway, this is the ship we wish to nominate and then Northern Gateway will make the request to OCIMF?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3421. **MR. JERRY ASPLAND:** That's correct.

3422. **MR. ROBINSON:** Thank you.

3423. B83-20, which is the corrosion, inspection and maintenance of oil tankers report indicates that there were new requirements for ships constructed after December 8th, 2006 to have coated ballast tanks. Will Northern Gateway require all tankers calling at the Kitimat Terminal to have coated ballast tanks?

--- (A short pause/Courte pause)

3424. **MR. KEITH MICHEL:** Northern Gateway would not accept tankers without coated ballast tanks.

3425. **MR. ROBINSON:** Thank you.

3426. Mr. Carruthers, will that be added to your list of commitments?

3427. **MR. JOHN CARRUTHERS:** Yes, I'm making a list here.

3428. **MR. ROBINSON:** Thank you.

3429. B83-20 similarly indicates that it has become standard practice to coat the tops and bottoms of cargo tanks and, in fact, as I understand it, this is now a requirement as of January 1st of this year. Will Northern Gateway require all tankers calling at the Kitimat Terminal to have coated -- to have cargo tanks coated at the top and bottom?

--- (A short pause/Courte pause)

3430. **MR. KEITH MICHEL:** At this time Northern Gateway is not -- does not intend to commit to the coating of cargo tanks. Tankers can safely carry cargo without the cargo tanks being coated. However, this will be an item that's given further consideration during the detailed design phase.

3431. **MR. ROBINSON:** I wonder if we could bring up that Exhibit B83-20 -- 83-20, at page 5. And if we go down under cargo tanks towards the bottom of the page and in the first paragraph under cargo tanks, the third sentence says:

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

“Industry practice is to coat the tops and bottoms of cargo tanks on crude oil carriers, whereas the sides of the tanks are rarely coated.”

3432. Are you indicating to me now that that is not standard industry practice?

3433. **MR. KEITH MICHEL:** It’s common practice. I would -- if I had to guess and this is purely a guess, I would say about 70 percent of tankers are coated on the tops and bottoms. There are some tankers that are predominantly in trades with cargos that are not likely to corrode tanks, so they may not have coated tanks and yet the steel may be in very good condition. In such cases, such a tanker could safely carry a load of dilbit.

3434. **MR. ROBINSON:** Thank you.

3435. Mr. Cowdell, on Tuesday, I believe it was, Volume 156, line 31679, you stated that:

“Requirements for coatings are very important.”

3436. Can you explain to me if requirements for coatings are very important, why Northern Gateway is not going to require these coatings?

3437. **MR. MICHAEL COWDELL:** I can’t be entirely certain but I believe that those comments were later corrected and attributed to Mr. Michel. There was some transcript confusion that day. So I’ll let him respond.

3438. **MR. ROBINSON:** Okay, I’ll pass the question. Thank you.

3439. **MR. KEITH MICHEL:** As discussed, coatings to ballast tanks are extremely important and even though the regulation won’t be fully implemented by the time -- if approved by the time this project would come online, as we just discussed, Northern Gateway is committed to the coating of ballast tanks.

3440. With cargo tanks, it’s less critical. As I said, what’s important is that the steel be in good condition. There are cargos -- you know, an example is Alaskan crude. There is very little corrosion whether the tanks are coated or not and so it’s -- some companies that transport Alaskan crude choose not to coat the tanks. It’s really a decision of the ship owner.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3441. What has been done in recent years is a regulatory regime has been put in place to ensure that corrosion will not proceed to the extent where it would endanger the vessel. And that is done through more periodic surveys of the ship and we've gone through this in the last few days. For ships over 10 years old, there is a close up visual inspection of all tanks. It's required every two and a half years and where there's concerns, that inspection is continued on an annual basis in specified locations.
3442. So that's the way corrosion is controlled. Having said that, the trend is towards coating of tanks -- of cargo tanks. As I said, probably the majority of ships today, coat and it takes a special provision not to coat for new buildings. Although -- and companies are getting that that are in these trades where the oils are not known to corrode. So that's background on coatings.
3443. **MR. ROBINSON:** There we go.
3444. I wonder if we could go to line 31586, and just if we could just scroll up and confirm this was indeed Mr. Michel speaking. Okay, good.
3445. So I just -- there's reference here that some of the structural failures referred to were ships that were never coated; is that correct?
3446. **MR. KEITH MICHEL:** That is correct. A number -- a couple of major losses of single-hulled tankers were involved, uncoated ballast tanks.
3447. **MR. ROBINSON:** The marine shipping QRA recommends that cargo tank arrangements that extend the width of the tanker, that is that tankers without a longitudinal bulkhead should not be accepted. Is Northern Gateway committing to that standard?
3448. **MR. KEITH MICHEL:** Yes they have.
3449. **MR. ROBINSON:** And I'm sure Mr. Carruthers will add that to his list.
3450. **MR. JOHN CARRUTHERS:** Yes.
3451. **MR. ROBINSON:** The -- am I correct that the tanker acceptance program will use the most current SIRE report for the ship; is that correct?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3452. **MR. JERRY ASPLAND:** That is correct. As I said the other day, they maintain that they're only good for two years.
3453. **MR. ROBINSON:** Is a physical inspection of the structural integrity of the vessel done as part of the SIRE report or does it rely on physical inspections that have been done prior to the SIRE report?
- (A short pause/Courte pause)
3454. **MR. JERRY ASPLAND:** There is a SIRE inspector who has been certified and trained. That inspector, in most cases and most often, will not go down into the tanks to inspect them.
3455. Having said that now, in the report, it will show all the inspections that have been done and their timeframe, and I'd like Mr. Michel then go through the different inspections so that we're all clear on how they take place.
3456. **MR. KEITH MICHEL:** If I could please ask Ms. Gilbert to go to Exhibit B83-20, Adobe page 7 please.
3457. This is a table of the inspections under the current enhanced survey requirements that would be required over the 20-year life of a tanker. These inspections are carried out by qualified inspectors under the survey of surveyors from the Designated Classification Society.
3458. There's extensive inspection during the building of the vessel and the commissioning of the vessel and the sea trials. Then there is annual inspections over the life of the ship that look at key equipment, machinery, shafting, et cetera; there are intermediate inspection -- well there are special surveys -- let me take that next -- which occur every five years and those are extensive surveys that do close up visual inspection of all aspects of the ballast tanks, the cargo tanks and do targeted thickness measurements. That's every five years.
3459. A new change as of the enhanced survey requirements of 2008, the intermediate survey, approximately the seven and a half year time period, that requires visual inspection of representative tanks, and the intermediate surveys for ships 10 years and older require a close-up survey of all tanks.
3460. Another change that was made is that, if the intermediate survey

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

identifies coatings that aren't in good condition, then those tanks are subject to a close-up inspection on an annual basis.

3461. And these changes have been made to assure that corrosion does not continue beyond acceptable levels. Should the amount of corrosion begin to approach pre-designated corrosion limits for each piece of plating, then that plating or structural shape needs to be replaced.

3462. **MR. ROBINSON:** Did you have more to add?

3463. **MR. KEITH MICHEL:** I did. If you -- just one moment.

3464. **MR. ROBINSON:** Sure.

3465. **MR. KEITH MICHEL:** I'm looking for a document.

--- (A short pause/Courte pause)

3466. **MR. KEITH MICHEL:** If I could ask Ms. Gilbert to turn to Exhibit B83-21, Adobe page 12?

3467. This is a typical section through a VLCC. And around the outside you see the wing tanks, port and starboard, and the double bottom along the bottom of the vessel. The typical width of the wing tanks and the double bottoms on a VLCC are between approximately three metres and three and a half metres.

3468. So the double bottomed -- the wing tanks extend here, the double bottom across here and the wing tanks up here. And this distance is three to three and a half metres.

3469. We now have requirements that are described as permanent means of access requirements that require that close-up visual inspection is available throughout the ballast tanks. This means that there would be no more than 20-feet between a platform and plating, allowing an inspector with a small ladder to get close up.

3470. So you see access ways, here, you see stringers -- these are known as "stringers" -- at appropriate levels, and you also see platforms at critical areas in the cargo tanks.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3471. **MR. ROBINSON:** Mr. Michel, just so that the transcript shows this, I'll try to describe what you've been indicating with a laser pointer.
3472. So the stringers are the horizontal lines drawn through the ballast tanks and you were also talking about access ways, which I think are labelled as walkways, et cetera, on the diagram.
3473. Did I get that correctly?
3474. **MR. KEITH MICHEL:** That's correct.
3475. These changes have greatly improved the ability to inspect the tanks of an oil tanker and to also perform thickness measurements. And it's actually a substantial advantage over the old single hulled design. Previously a single hulled tanker had three large tanks across and access for close-up inspection required rafting or other equipment to reach these areas. So now it's much more -- much easier to do the close-up inspections. And so this is another change that's been made in addition to the regulatory changes on requirements for these regular inspections.
3476. **MR. ROBINSON:** Thank you.
3477. I just want to go back to my original question. It's my understanding, from the SIRE process that what the SIRE audit does is it asks the question: Has a physical inspection of the cargo hold and ballast tanks been carried out in some period prior to the SIRE audit?
3478. Is that correct?
3479. **MR. KEITH MICHEL:** That's correct.
3480. SIRE ensures through auditing that these procedures that are imbedded in the International Maritime Organization requirements and the classification requirements have been followed and that the inspections have been carried out.
3481. **MR. ROBINSON:** And if I followed the previous table that you had up there, in most cases, a vessel would have had a physical inspection of its cargo hold and ballast areas within one year of its SIRE audit.
3482. Is that correct?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3483. **MR. KEITH MICHEL:** No, the close-up inspection of all tanks is required every five years ---

3484. **MR. ROBINSON:** Five years. Okay.

3485. **MR. KEITH MICHEL:** --- for the -- a ship from zero to 10 years of age; and every two and a half years for a tanker over 10 years of age.

3486. Additional inspections on an annual basis of the tankage is only required if it's determined the coating is not in good condition.

3487. **MR. ROBINSON:** If there is a coating?

3488. **MR. KEITH MICHEL:** Ballast tanks will be coated ---

3489. **MR. ROBINSON:** Okay.

3490. **MR. KEITH MICHEL:** --- in all cases.

3491. **MR. ROBINSON:** So if I'm right -- so let's take a new vessel then. So the SIRE audit will ask the question: Has this vessel had a structural inspection within the past five years?

3492. And if I'm correct, Captain Aspland, you just said the tanker acceptance program will ask the question: Has this tanker had a SIRE within the past two years?

3493. Is that correct?

--- (A short pause/Courte pause)

3494. **MR. JERRY ASPLAND:** Would you repeat that again?

3495. **MR. ROBINSON:** I'll repeat the -- I believe you said just a few minutes ago that, under the TAP program, Northern Gateway would require that the vessel had a SIRE audit within the previous two years.

3496. Is that correct?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

--- (A short pause/Courte pause)

3497. **MR. JERRY ASPLAND:** Let me kind of go back over the timeframes here, I think it will be helpful.

3498. The inspector vessel request to be inspected to put the ship into the system. A member of the SIRE program, or I should say a member of OCIMF, then agrees to have that inspection and a SIRE inspector is assigned. That SIRE inspector then writes a report. This report can be as much as between 25 and 50 pages, it covers everything. In that report will be the inspection reports.

3499. So we have a SIRE inspection, we have a SIRE inspection report. That SIRE inspection report -- that SIRE inspection report is only good for two years. So at two years, the ship owner would once again have to ask for another inspection.

3500. And within the SIRE report, it will go through all these things that Mr. Michel has talked about. And I want to make it clear that the TAP program or any vetting program can ask the ship owner for additional information.

3501. So they could ask the ship owner: "We would like to see if you've done any additional inspections." and the ship owner then must reply.

3502. **THE CHAIRPERSON:** Mr. Robinson, would this be a good time to take our break for lunch?

3503. **MR. ROBINSON:** If I might ask one more question?

3504. **THE CHAIRPERSON:** Sure.

3505. **MR. ROBINSON:** And then the break.

3506. So if I follow this discussion correctly, in terms of physical structural inspection of the ballast and cargo tanks, it could be -- a ship could have a valid SIRE audit and the -- the tanks have not been physically inspected for structural defects for seven years given the five year that -- that it can get a SIRE permit if it's -- let's take a new ship.

3507. It can get a SIRE permit if it's had a structural permit in the last five years and the SIRE permit is good for two years. It seems to me potentially a ship

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

- could have a valid SIRE permit but not have had the tanks physically inspected for seven years; is that correct?
3508. **MR. JERRY ASPLAND:** I want to just correct one thing. There is -- there's no such thing as a SIRE permit; it's a SIRE inspection.
3509. **MR. ROBINSON:** Oh, SIRE -- SIRE inspection. Thank you.
3510. So am I correct then that it -- it -- a ship could hold a current SIRE inspection with the cargo tank not having been physically inspected for structural defect for seven years?
3511. **MR. KEITH MICHEL:** Yeah, let me go back to discussing the survey requirements which remain up on the screen.
3512. These are requirements of class; they are requirements of the flag state. A ship could not go to sea without being classified. And the classification requirements under the direction of IMO are that there be no more than five years between the close up inspections.
3513. Now, the reason that it's five years from -- between zero and 10 years is that corrosion is limited in the early years of -- of a ship's life. And that's the reason that the inspections are tightened up in future years.
3514. I -- I'd like to ask Ms. Gilbert to go back to Document B83-20, Adobe -- Adobe page 4, please.
3515. This again is a cross-section through a tanker. And what you see there identified are the corrosion limits of each piece of structure. So for instance, the main deck plating is shown with a corrosion limit of 4 millimetres. And the inner bottom would be another example, 4 millimetres, and the inner shell is 4 metres -- millimetres. And other plating may vary between 2.5 and 4 millimetres.
3516. These corrosion limits are based on analysis of over a thousand vessels, the corrosion rates that would be expected over the lifetime of the vessel. So the rules are intended that the plating will not be required to be re-plated -- replaced during the life of the vessel.
3517. However, if there is accelerated corrosion, as I mentioned earlier, if the amount of corrosion starts to approach these limits then the steel would need to be

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

- replaced. And the way the rules are written the -- the expected corrosion over a two and a half year period is .5 millimetres.
3518. And so if at the intermediate survey the amount of corrosion has gotten within .5 millimetres of these specified corrosion margins then the steel would need to be replaced at that time. So there is a margin put in there to ensure that you don't exceed the corrosion limits.
3519. Furthermore, these corrosion limits are over and above the thickness of steel plate that's needed for structural reliability of the ship. So we use the term "net scantlings" which is the thickness of the plate before you add the corrosion allowance. So as an example an inner bottom might have net scantlings of 16 millimetres plus a corrosion allowance of 4 millimetres, it would be 20 millimetres thick.
3520. It can corrode down to the 16 millimetre level and meet all the requirements of the Classification Society for structural strength and reliability. In other words the ship is designed based on the net scantlings and then these corrosion margins are added in over and above these net scantlings.
3521. And this whole process is one that has been developed over the last decade. The combination of how scantlings are developed and -- and the enhanced survey process and it's to ensure that the ship remains structurally reliable throughout the survey period over its 20 or 25-year design life.
3522. Thank you.
3523. **MR. JERRY ASPLAND:** I would like to answer your question but I think we need a break.
- (Laughter/Rires)
3524. **MR. ROBINSON:** I -- I agree, and I am happy to re-ask the question when we -- when we return.
3525. **MR. JERRY ASPLAND:** Thank you.
3526. **THE CHAIRPERSON:** Thank you very much.
3527. Mr. Robinson, can you give us an estimate for timing purposes as to

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

where you're at in your -- in your questions?

3528. **MR. ROBINSON:** Yeah, I expect that I will take the bulk of the rest of the day.

3529. **THE CHAIRPERSON:** Thank you, Mr. Robinson.

3530. Let's break for lunch and come back at 1:15 please.

--- Upon recessing at 12:06 p.m./L'audience est suspendue à 12h06

--- Upon resuming at 1:14 p.m./L'audience est reprise à 13h14

3531. **THE CHAIRPERSON:** Good afternoon, everyone. We're ready to resume.

3532. Are there any parties that have any preliminary matters they wish to raise this afternoon?

3533. **MS. ANDERSON:** Good afternoon, Madam Chair, Members of the Panel.

3534. Dayna Anderson on behalf of the federal government participants. You caught me a little off guard there when you started. I wasn't quite ready.

3535. I just have a very brief preliminary matter with respect to the seating of government participant witness panel 1. In some discussions that I had with Ms. Brown earlier today it was looking as though the schedule was going to have questioning of the intervenors finishing sometime during the day on April 12th and then perhaps having a few hours left where normally the federal participants would start.

3536. We have about 24 witnesses who are going to be appearing in person and so we were just hoping to get some direction from the Panel on whether you would like them to be present on the 12th to be sworn in or whether you'd be looking to move them over to the next hearing date which is the 22nd?

3537. **THE CHAIRPERSON:** Thank you, Ms. Anderson.

3538. The Panel doesn't see any sense in having that many people travel to Prince Rupert for maybe the benefit of a couple of hours of -- of questioning.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3539. So let's work on the basis that we will begin the Government of Canada's first panel on the 22nd of April when we resume.

3540. **MS. ANDERSON:** Thank you very much, Madam Chair.

JOHN CARRUTHERS: Resumed

JERRY ASPLAND: Resumed

JENS BAY: Resumed

AUDUN BRANDSAETER: Resumed

DAVID FISSEL: Resumed

AL FLOTRE: Resumed

KEITH MICHEL: Resumed

STEVEN SCALZO: Resumed

THOMAS WOOD: Resumed

MICHAEL COWDELL: Resumed

HENRIK KOFOED-HANSEN: Resumed

3541. **THE CHAIRPERSON:** Mr. Robinson, please continue with your questions.

**--- EXAMINATION BY/INTERROGATOIRE PAR MR. ROBINSON:
(Continued/Suite)**

3542. **MR. ROBINSON:** Thank you.

3543. I will just go back to the question that was posed, and I think you were prepared to give me an answer Captain Aspland.

3544. And that was my question really was is it possible that a vessel could hold a valid and current SIRE inspection and not have had a detailed physical inspection of the structural integrity of the cargo hold in the previous seven years?

3545. **MR. KEITH MICHEL:** I think I answered that one, that it's impossible for a vessel to not have been inspected in more than five years; that it's a requirement of class, it's a requirement to go to sea is to have an inspection in -- from zero to 10 years of age, not less than five years, from 10 to 20 not less than two and a half years. And this is an inspection of tanks; in fact, the vessel will be inspected annually.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3546. **MR. ROBINSON:** Just to clarify, my question is about SIRE, and if I understand it -- just maybe to try and overcome the confusion here. A SIRE inspection is valid for two years. The SIRE inspection requires that the vessel have been inspected in the previous five years. So it seems to me that you could hold a valid SIRE inspection but the vessel may not have been inspected in the previous seven years.

3547. **MR. KEITH MICHEL:** It's simply not possible because the vessel had to have been inspected in the prior five years to go to sea. If a vessel is not classed it doesn't have a SIRE.

3548. **MR. ROBINSON:** Okay.

3549. In response to an IR -- I believe it's one of the Joint Review Panel's IR responses -- this is B74-2, pages 18 and 19, Northern Gateway commits that it will provide the terminal operations manual and the port information book to vessel operators in time for them to understand and fully comply with the documents.

3550. How will Northern Gateway confirm that these documents have been reviewed and fully understood?

3551. **MR. MICHAEL COWDELL:** Could you just repeat the question, sorry, we were still ---

3552. **MR. ROBINSON:** Sorry. I might have jumped in there.

3553. My question is really that, you know, the terminal operations manual and port information book will be provided to the vessel operators in time for them to understand and fully comply, and I'm just wondering -- my real question is how will Northern Gateway confirm that the book has been read and understood or that these documents have been read and understood?

--- (A short pause/Courte pause)

3554. **MR. MICHAEL COWDELL:** I think we already covered this previously. These documents -- the terminal operations manual, the terminal regulations, and the port information handbook would be provided to the tanker in advance, via the ship's agent, to review and they will have to acknowledge to us that they have accepted and reviewed those documents. That's common practice

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

at ports and terminals around the world. So I don't think we foresee a problem in anyone understanding those documents.

3555. The bottom line is that the terminal regulations have to be followed and we will enforce compliance with those regulations.

3556. **MR. ROBINSON:** Would you agree with me, though, that there might be a difference between review and understand? And is there some way to confirm that the instructions were understood?

3557. **MR. MICHAEL COWDELL:** These documents will be understandable by operators of tankers such as the ones that we're calling at the Kitimat Terminal.

3558. **MR. ROBINSON:** Thank you.

3559. Mr. Fissel, I just have a couple of quick questions around -- these questions are around the gathering of the visibility data that's in B17-18, Ms. Gilbert, page 42, if we could go there. Adobe page 42. And I think I want to start -- there's a chart at the bottom of that page. And if you just go up a bit more -- just a little bit more so I can see.

3560. So, Mr. Fissel, this indicates that this is visibility data, I take it, collected at three sites in Hecate Strait and Prince Rupert. Just to confirm, were any of -- none of those sites are within Douglas Channel; is that correct?

3561. **MR. DAVID FISSEL:** Yes, that's correct. All those sites are in Hecate Strait, and that would be Ethelda Bay, Bonilla Island, Triple Island, as we discussed that, near the pilot boarding station, and right here in Prince Rupert.

3562. **MR. ROBINSON:** I apologize for my lack of knowledge of B.C. geography.

3563. If you could -- if we could just scroll down a bit there's a table here.

3564. So this indicates again I think data that -- visibility data that was available from weather stations. And again the same question -- you know, I recognize that Kitimat is listed there but only with a couple or a few months of data. Do any of those other sites are they within the Douglas Channel?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3565. **MR. DAVID FISSEL:** Only Kitimat, which is in, of course, Kitimat Arm ---
3566. **MR. ROBINSON:** Yes.
3567. **MR. DAVID FISSEL:** --- at the north end of Douglas Channel.
3568. **MR. ROBINSON:** Okay. Thank you.
3569. So was -- is there any other -- do you have any other visibility data from within Douglas Channel?
3570. **MR. DAVID FISSEL:** There is -- we have looked at Environment Canada data. Unfortunately, there isn't much Environment Canada data in Douglas Channel. In fact, there's only the Kitimat weather stations and there is visibility data at Terrace, which is the regional airport, north of the Town of Kitimat.
3571. The other thing I could inform you of is that the weather stations that the Northern Gateway Project has been operating does have some data that's related to visibility, but it's not directly visibility, it's basically measuring the amount of solar radiation, the amount of sunlight that's been -- that's been encountered by the weather station.
3572. But no, unfortunately, there's no -- not very much direct measurements of visibility along the Douglas Channel area.
3573. **MR. ROBINSON:** Thank you.
3574. I just want to ask some questions about escort tugs. I again apologize for jumping over. It's the nature of how I've organized things.
3575. Is it correct that escort tugs will remain in position during the docking -- during docking manoeuvres at the terminal; is that correct?
3576. **MR. STEVEN SCALZO:** Yes, that's correct.
3577. **MR. ROBINSON:** Okay. And is the estimated number of tugs on this project still to be five escort tugs and two harbour tugs? Is that still accurate?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3578. **MR. STEVEN SCALZO:** I may have answered a little quickly here to your previous question as maybe Mr. Cowdell but when you ask if escort tugs -- are you asking will all the escort tugs be at the terminal location at the time of one ship docking?

3579. Maybe you could restate the question.

3580. **MR. ROBINSON:** I was just asking really -- actually, let me go to a reference here and then you can just confirm and that's at B44-3, page -- Adobe page 48. And the last line under 5.2.2 there, I believe, says -- hang on here. Let me make sure I get it right. Yes. It says:

“As there will always be at least one 100 tonne escort tug available when ships dock or undock...”

3581. That's really all that I'm asking, is that -- just confirming that point. There will always be 100 tonne escort tug when ships dock and undock?

3582. **MR. STEVEN SCALZO:** Yes, an escort tug will be available at the terminal during docking activities. At the terminal also, will be the harbour tugs or the ship assist tugs for that specific purpose and, you know, the number of tugs there will depend on various circumstances.

3583. **MR. ROBINSON:** Thank you.

3584. And is it still the intention that there would be, for this project, five escort tugs and two harbour tugs? Is that still accurate?

3585. **MR. STEVEN SCALZO:** I think the report shows that it will be four to five escort tugs and two docking tugs.

3586. **MR. ROBINSON:** Am I correct then that Northern Gateway could never have more than two laden tankers in the confined channel area at one time, whether they be condensate or oil, just given that each of those requires two so it takes care of four.

3587. **MR. STEVEN SCALZO:** The question was to laden tankers?

3588. **MR. ROBINSON:** Yes laden, yes.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3589. **MR. STEVEN SCALZO:** I believe that's correct, yes.
3590. **MR. ROBINSON:** Okay, thank you.
3591. And am I correct that the general intention is that the untethered escort tug in untethered situations would be approximately 500 metres astern of the tanker?
3592. **MR. STEVEN SCALZO:** The escort tug that's untethered is there and will be in the immediate -- near and immediate vicinity to the tanker. The placement of the tug will really be up to the team, which will be the pilot, the tug master, based on the best location of that tug during the area which it may be transiting.
3593. So in all cases, it may not be 500 feet astern, it could be up off the bow or running amidships alongside. The placement of it will most advantageous but in all cases -- in all case, it won't be 500 feet astern in all cases.
3594. **MR. ROBINSON:** Could it be more than 500 metres astern?
3595. **MR. STEVEN SCALZO:** Again, I think the best way to describe that is depending on the particular strategy, the location and the requirement. It will certainly be within that very close proximity but be strategically placed to the best benefit of the pilot and the ship.
3596. **MR. ROBINSON:** Ms. Gilbert, I wonder if we could bring up B23-6, page 81 -- Adobe 81, and the last line on that page.
3597. So the -- I'll just let you read the last line there.
3598. So you're saying now that's more of just a guideline kind of?
3599. **MR. CROWTHER:** Mr. Robinson, are you directing the witness to the last sentence in that?
3600. **MR. ROBINSON:** Yes, the last sentence, yes.
3601. **MR. STEVEN SCALZO:** Yes, the last state -- sentence says:

“[A position] approximately 500 metres astern of the ship, or

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

*as directed by the master or the pilot during the [normal]
transit [operations].”*

3602. And I think that’s what I said. It would be in the very close proximity within that 500 metre range. But again, it is really a tool to be used in the prevention of and in mitigation of risk. It is safe for these vessels to transit on their own the entire route.
3603. What’s provided here for laden tankers is two escort tugs and for ballasted vessels, one escort tug. They’re there to help support the transit, to be a tool in prevention and a tool in preparedness for potential emergencies.
3604. **MR. AL FLOTRE:** If I could add, if I were the pilot, I would have the second escort tug forward of the ship, off to one side, and it has to do with closing speed. If I needed that tug and he was astern and I’m doing 12 knots, he has 15 knots. He can only close on me at 3 knots.
3605. If he’s forward, the two speeds are combined, so he would close probably at 26 knots. You know, 14 knots, 15 knots for him and 12 for the tanker. So he would come to my assistance much quicker if he were ahead of me.
3606. **MR. ROBINSON:** And for a ballasted or not loaded tanker where there’s a single escort with it, where would you position the escort tug?
3607. **MR. AL FLOTRE:** I would have him as close to the stern as possible for us to make the transit so that if I need to tether that tug it would be done as quickly as possible.
3608. **MR. ROBINSON:** I’d like to look now at B44-3, which is the escort and docking tug system, and this is really just to clarify some confusion I had. If we could go to Adobe page 40, section 5.12 and in the second paragraph and I’ll just maybe again paraphrase while you have a look at it.
3609. And it discusses 35 degree rudder failure and 20 degree rudder failure. And if I understand it right, it’s saying that the 20 degree rudder failure is the higher demand situation because there’s less reduction in the forward speed of the tanker. Am I interpreting that right?
3610. **MR. AL FLOTRE:** That is correct.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3611. **MR. ROBINSON:** Okay, thank you.
3612. In -- on page 42, there's a figure -- Figure 5.3, and I think if we just -- I believe if we look below the green bars, it discusses, you know, what the situation was and I believe all three illustrated here are 35 degree hard over rudders.
3613. And then I want to go to Table 5.2, which is just below this on page 43, and I'm getting to the question here.
3614. Can you tell me -- so these are all 35 degree hard over rudder situations as well. So now I get to my question. Is Figure 5.4, which is on 44 -- page 44 below -- and it shows the deviation -- can you tell me, were these all 35 degree hard over or does this include 20 degree as well in this table -- in this diagram?
3615. **MR. STEVEN SCALZO:** Let me try and pull those apart okay ---
3616. **MR. ROBINSON:** Yeah, okay.
3617. **MR. STEVEN SCALZO:** --- and try and address them one by one. So if maybe we could go to the first one. I think the first one you referred to was on page 42 -- Adobe page 42?
3618. **MR. ROBINSON:** Yes, Figure 5.3.
3619. **MR. STEVEN SCALZO:** And you asked if these were all done at -- I thought you asked 35 degree ---
3620. **MR. ROBINSON:** Thirty-five (35) degree -- it appears to be what it says underneath the green bars but can you ---
3621. **MR. STEVEN SCALZO:** Yes, this shows three examples in their various speeds of 8, 10 and 12 knots at 35 degree rudder failures.
3622. **MR. ROBINSON:** Okay.
3623. **MR. STEVEN SCALZO:** And then can we go to the second question, which I think dealt with ---

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3624. **MR. ROBINSON:** Table 5.2, which is ---
3625. **MR. STEVEN SCALZO:** --- page 43?
3626. **MR. ROBINSON:** --- page 43. And if I read these, these also all appear to be 35 degree; is that right?
3627. **MR. STEVEN SCALZO:** That's correct.
3628. **MR. ROBINSON:** Okay. And then my question really just was, I wasn't clear whether Figure 5.4 was based on those runs that we are seeing for example here or is Figure 5.4 based on something else and does it include 20 degree fillers?
3629. **MR. STEVEN SCALZO:** Yes, to be clear, the diagram on page 44, Figure 5.4, though not specifically stated, is 20 degree rudder failures.
3630. **MR. ROBINSON:** Okay, thank you, that's really what I was after.
3631. **MR. AL FLOTRE:** It's important to note that modern day ships -- that was for the purpose of the -- of the trial, but on modern day ships, it would release the pressure -- the hydraulic pressure on the rudder and return it to mid-ships even if it was inoperable.
3632. So in this case, the rudder was left at the failure position to illustrate the ability of the tug to handle it when, in practice, you would release the pressure to the rudder and allow it to move to a mid-ships.
3633. **MR. JERRY ASPLAND:** I'd just say that that is a requirement of tankers, that the rudder will come back to the neutral position. That was put in and is part of the regulations after a famous accident occurred, that the rudder will come back on its own to neutral.
3634. **MR. ROBINSON:** Thank you.
3635. Mr. Bay, did you run any simulations in which the tug assisting the tanker itself had an engine failure, that is the tug had the engine failure while attempting to assist the tanker?

--- (A short pause/Courte pause)

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3636. **MR. JENS BAY:** Mr. Robinson, we did not test the failure on the tug at the same time of the tanker's failure. We found that was totally unlikely, and maybe Mr. Scalzo can comment on that.
3637. **MR. STEVEN SCALZO:** Let me talk a little bit about the tugs themselves. The laden tankers, I think as we've discussed earlier, will be escorted by two tractor escort vessels. So each -- each vessel will have a second tug to utilize.
3638. All the simulations run, in the particular figures and schedules we just talked about, were done based on a laden tanker and only the utilization at those three speeds, only the utilization of one tug. In addition to that, having the second tug available.
3639. The tugs are built to have internal redundancies themselves. In other words, the tug can be completely safe if it has power to one propulsion unit and can still exert steering forces, so it can produce -- still provide propulsion steering forces, so it produce lift or force to the towline.
3640. So part of the reason that we selected the combination of tug and propulsion unit was in itself redundant, that the tug is fully capable to operate in performance service even on one propulsion unit as long as it has one main engine running should that be -- should that be a concern.
3641. **MR. ROBINSON:** Am I correct, in the situation of a ballasted tug, so an unladen tug with the escort or -- unladen tanker, pardon me, it's a ballasted tanker with the escort tug, if that tanker should lose propulsion or have some steering failure, the escort tug would make up the distance to that -- to the tanker and attempt to attach a tether line. Is that correct?
3642. **MR. STEVEN SCALZO:** Could you just restate? I got -- restate it again please.
3643. **MR. ROBINSON:** Yeah, that was kind of garbled and I apologize for that.
3644. A situation of a ballasted tanker, so an empty, in a sense, tanker with an escort tug, if that tanker should have a propulsion failure or a steering failure, the plan as I understand it, is that the escort tug would attempt to attach a tether to

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

the now disabled tanker. Is that correct?

3645. **MR. STEVEN SCALZO:** Well, again the reason we're providing the tug with a tanker -- and understand that the tanker is completely, you know, capable of making a safe transit, but should it have a failure, as you mentioned, the tug is -- is there to be used as best appropriate.

3646. Again, depending on the transit location, the speed and the conditions at the time, it's -- it is again a tool for someone like Captain Flotre to then want to position or use how best at that particular time it may be needed.

3647. At -- at a particular location, it may be just fine to stand off. It may -- he may want to use it up off the bow just pushing without a line attached. He may want to put it to the stern even without a line attached to push the ship.

3648. I mean, there are all kinds of strategies and he has very flexible -- the pilot, he or she has very flexible capabilities of that vessel for the particular situation.

3649. Should -- should the project be permitted, and as we move to final design detail, an operations plan will be developed that will further the information and the simulations and develop particular handling strategies for the route.

3650. **MR. ROBINSON:** Thank you.

3651. Are you familiar with an incident in December of 2012 that involved, I believe it's called the Kulluk oil platform which was -- which was being towed by a tug and the -- the tug suffered multiple engine failures as I understand it, and if I can refer you, it's one of our AOs if you need to look at it.

3652. **MR. STEVEN SCALZO:** Right, I'm fairly familiar with the Kulluk incident.

3653. **MR. ROBINSON:** Okay. Would you agree that was an incident where the towing tug suffered multiple engine failures?

3654. **MR. STEVEN SCALZO:** Yes, that's what's been reported.

3655. **MR. ROBINSON:** Thank you.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3656. **MR. STEVEN SCALZO:** Let me just add to that if -- if I can. That -
- I know that a full investigation will be made of that incident and -- and so it's
hard to speculate on exactly what caused that incident at this point.

3657. **MR. ROBINSON:** Yes, thank you.

3658. **MR. MICHAEL COWDELL:** But -- and also just keep in mind, I
think what you're -- the picture you're painting of a -- of a ballasted tanker having
engine difficulty, say, and the close escort tug then also having a problem, keep in
mind there's other tugs available in the area to help out. The -- the fleet of tugs
will be available to -- to come and provide additional assistance.

3659. So you know, (a) it's a highly unlikely scenario given both the -- the
quality of tanker that's going to be calling at Kitimat through the tanker
acceptance program and given the very new escort tugs that will be -- be in
operation and -- and their built-in redundancies both in terms of engines and
propulsion systems.

3660. And maybe I'll just let Mr. Michel expand a little bit more on the
redundancies on board modern tankers, but also, Mr. Scalzo to elaborate a little
bit more on the redundancies that are on board the -- the tugs because it's not as if
they have one engine and just one propulsion system.

3661. **MR. KEITH MICHEL:** Yeah, to begin with, the -- you know as just
stated, the probability of a tanker losing power is quite low; the probability of the
tug losing power is quite low. The probability of both of those occurring at the
same time is the product of those two values which is very unlikely.

3662. There are layers of redundancy in a marine transportation system.
We've discussed steering, for instance and loss of steering. Captain Aspland
mentioned that the rudder is designed to return to a neutral position, but tankers
are also required to have redundancy in the steering gear, so if one fails, the -- the
-- it'll still operate.

3663. The tugboats, as mentioned by Mr. Scalzo, have multiple propulsion
units, and in the case of a laden tanker, we have a pair of tugs. So there are many
layers of redundancy that enhance the safety of the entire system.

3664. **MR. ROBINSON:** Thank you, Mr. Michel.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3665. With respect to the tug, there is the basic machinery, but like what we talked about in tankers, there are regulatory driven requirements that touch on everything from construction and operation standards down to crewing and training, and in particular, all these vessels that will be involved in supporting the operation. The escort tugs, as well as the harbour tugs as they're referred to in the report, will be covered by a safety management system.
3666. And that safety management system is a part of a third-party independently audited system that covers all the management policies and procedures, the management policies and procedures of the company responsible for operating them down to the vessels operating requirements, its policies and procedures.
3667. And in there is its maintenance program and so the tugs are covered under a very strict maintenance program of both regulatory required and a preventive maintenance program. And as those criteria are established for the vessel, then they are certainly complied by -- complied to by the operating company, but as well as they are audited independently.
3668. In the case of our personal operations, that's conducted by a regulatory agency and we use ABS for that certification.
3669. The auditors involved are inspecting the vessels and ensuring that the vessels are complying with those policies and procedures, as well as ensuring that from the management company's point of view, its policies and procedures area also being covered.
3670. So you have both from the management side as well as the operational side a pretty good system of safety management oversight.
3671. **MR. ROBINSON:** Thank you.
3672. I believe on Wednesday, Mr. Scalzo, you indicated that all of the escort tugs would be equipped for ocean rescue; is that correct?
3673. **MR. STEVEN SCALZO:** I said -- I believe I said that it was the escort tugs.
3674. **MR. ROBINSON:** Escort tugs, yes.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3675. **MR. STEVEN SCALZO:** And the escort tugs will be specifically outfitted for ocean rescue. I went through at that time in some detail the various elements of that design ---
3676. **MR. ROBINSON:** Yes.
3677. **MR. STEVEN SCALZO:** --- and I can go through them again ---
3678. **MR. ROBINSON:** I don't need you to repeat that, thank you.
3679. And that ocean rescue capability would be out to 200 nautical miles; is that correct?
3680. **MR. STEVEN SCALZO:** It would be out to 200 miles but not limited to 200 miles. The tugs are capable of operating anywhere. They have an endurance level -- we anticipate based on preliminary design -- of a full operation in excess of 14 days. And so it would really be based on the particular need.
3681. But they can operate really anywhere world-wide if that was a requirement.
3682. **MR. ROBINSON:** What's the maximum speed that an escort tug can achieve? The ones that are anticipated for Northern Gateway?
3683. **MR. STEVEN SCALZO:** The escort tugs for this project, the speed should approximately be about 15 knots free running. And when I say that that'll be verified at final design, but the initial preliminary design shows a free running speed of approximately 15 knots.
3684. **MR. ROBINSON:** Okay. Thank you.
3685. Ms. Gilbert, I wonder if we could bring up B38-2, page 74 to 75? And this is an IR -- it's IR Response 1.18D. So I think you probably got to go down a little bit on the page.
3686. **MR. CROWTHER:** Just for the record, it's a Coastal First -- a response to a Coastal First Nations information request.
3687. **MR. ROBINSON:** Okay. And I think you may have to go just a little

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

- bit onto the next page. So I -- yeah, if we just stop there.
3688. So this indicates that the response time to these locations -- and that's referring to Dixon Entrance and Queen Charlotte Sound above would be -- it indicates as we go down just onto the next page, that the response time would be the range of 6 to 12 hours. My calculation for out to 200 nautical miles at 15 knots would be about -- a little over 13 hours.
3689. Could a disabled tanker in the vicinity of Dixon Entrance or Queen Charlotte Sound drift aground in 12 hours?
3690. **MR. STEVEN SCALZO:** First of all could -- could you just so I understand this better -- it was jumping around a bit -- could we go back up a little farther so I can just see it for -- so I understand what it said here.
3691. **MR. ROBINSON:** Yes, I think if you start at the paragraph that says, "For Project tugs awaiting the arrival or assisting with ...departure" and position of reasonable proximity, I think it's indicating sort of escort tugs in its normal position would take 6 to 12 hours to respond out to those.
3692. But I think if you just scroll up -- just -- yeah -- up a little more -- there. I think that should give everybody what they need to read. It's just onto the first line of the next page.
3693. **MR. AL FLOTRE:** Just a quick question; I'm confused because you mentioned 200 miles out which is much further than Dixon Entrance. And at that point 200 miles for the 12 hours there's no land close by that they could go aground, so ---
3694. **MR. ROBINSON:** Okay. Well, let's just stick with Dixon Entrance or Queen Charlotte Sound since that's what's referred to here and it's indicated that the response time would be 6 to 12 hours.
3695. So I'll just repeat the question which is could a tanker in the -- in this location drift aground in 12 hours?
3696. **MR. KEITH MICHEL:** Earlier in the week, Northern Gateway said that it was committed to performing a drift study during the detailed design phase. There's many factors involved with whether a disabled tanker will go aground.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3697. This includes the weather conditions at that time, both directionality and severity of weather, and distance from land and so this type of analysis and assessing the probability that the escort tug will be able to make a rescue is a -- should be a probabilistic based assessment and that will be done during the detailed design phase.
3698. **MR. ROBINSON:** Will the escort tugs have any ocean salvage capability?
3699. **MR. STEVEN SCALZO:** Can you define what you mean by that?
3700. **MR. ROBINSON:** Well, it's my understanding that in an incident or if a tanker is totally disabled or in fact has suffered some sort of structural failure, that it takes a specialized tug to deal with that. Am I correct in that? Maybe you tell me what a salvage tug is.
3701. That's my layman's understanding. Remember I'm from Calgary and the biggest boat I've piloted is a canoe, so.
3702. **MR. STEVEN SCALZO:** Yeah, again, it goes a lot to -- the answer goes really a lot to what we mean by salvage. The tug -- the escort tugs are outfitted to not only again be a tool in prevention, be in protection and if an incident were to occur to be on scene -- so they are really the first responder -- and to be able to support the captain of that ship and particularly the pilot for that emergency situation. That's not what we would kind of define as salvage, okay?
3703. Then you can move on to salvage being something as much as a response to a grounding or some event that like that, depending on how it's developed. Depending again on the circumstance and what's going on, these tugs could be a tool -- again, another asset used as part of the salvage plan.
3704. But there will be an overall -- in most all cases, of true or real salvage, there's a plan put together and that plan's put together with the assistance of the ship, the agency -- whether it's Transport Canada and the U.S. Coast Guard, the operator and others -- and that salvage plan could potentially rely on the capability of one of the escort tugs.
3705. **MR. ROBINSON:** Thank you.
3706. Mr. Scalzo, I think on Wednesday you indicated that the final tug

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

designs obviously are -- are yet to be specified. But you did refer at one point to B44-3, page 32, Table 4-1, which I think is sort of a summary of the various characteristics of the planned tugs.

3707. At this point in time do you know of any changes to the specifications from what's suggested here?

3708. **MR. STEVEN SCALZO:** The -- you know, the tug design is preliminary. I -- I think it represents a very good indication of what is probably the -- what is, I shouldn't say probably, what is the most advanced escort tug that would be in existence.

3709. And when I say advanced I mean it in a positive way of attributes that have been added to the vessel to enhance its performance and I went through a list of those previously. And I won't go through them again unless you want me to. But -- but I guess the point I'm -- I'm trying to make is that this -- this vessel has significant capability above and beyond any other escort tug in current operation and is certainly a world-class or I think Mr. Tollefson used the word the gold standard, and its capabilities have been developed and matched for the particular performance of this project.

3710. **MR. ROBINSON:** I believe in response to some discussion on Wednesday, you indicated that -- that the bollard pull rating may not be as significant as some other ratings, and I think you mentioned things like breaking and steering forces, dynamic line forces.

3711. In what situations is bollard pull capability significant or of importance?

3712. **MR. STEVEN SCALZO:** Yeah. The -- the capability of a tug traditionally was sometimes characterized under horsepower and/or under bollard pull. Bollard pull being that amount of force the tug would put on let's just say a bollard which is like a bit or a fitting on a stationary object and pull against it, how much power it's producing.

3713. Bollard pull is -- is an important indication if you're doing just that or if you're trying to move a stationary object or taking in control a stationary object to begin it's -- it's movement.

3714. But once you get in -- in a dynamic situation where you're in

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

interaction with the tanker and you're in interaction with the seaway, in other words moving through the water, then bollard pull becomes less important and what becomes more important is what we -- and I tried to describe fairly concisely, is the indirect forces that a tug can apply on a vessel that is escorting and/or assisting.

3715. And -- and that comes from a combination of its power and -- and represented by its horsepower, you could say to some degree even its bollard pull. But more importantly -- much more importantly the hydrodynamic effect of its positioning, the in-flow velocity of the water to its hull and how that in-flow velocity works against the design of the hull and its particular lifting forces.

3716. And maybe I can ask you to go -- I think we're still in the same document, go to Adobe page 31.

3717. Do we have the little pointer?

3718. And again we went through this before but let me just -- just again show it. That's the propulsion units approximately a third of the distance after the bow. The tractor tug you talked about redundancy there are two sets of those, each independently tied to main engines in the hull. They provide thrust through 360 degrees as directed and controlled by the tug captain.

3719. But the indirect or lifting forces or force being applied on the tanker, it is a combination in a dynamic situation of some propulsion, propulsion primarily help to position the tug, the -- the effect of the hull and importantly the effect on the skeg, which is a high-lift skeg to give force and produce force on the tow point. Tow point and the tug translating that to the tanker through the towline.

3720. **MR. ROBINSON:** Thank you. I don't think I need further than that.

3721. Is -- is a 100 tonne bollard pull tug common in B.C. or are there -- are these in operation elsewhere in B.C.?

3722. **MR. STEVEN SCALZO:** Not this specific model but...

3723. **MR. AL FLOTRE:** I'm not aware of one that's 100 tonnes. Some of the delta port tugs and the contain -- tugs -- docking tugs for containers in Prince Rupert may be approaching that in the range of 80 tonnes bollard pull but no 100 tonne tugs that I know of in British Columbia.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3724. **MR. STEVEN SCALZO:** Likewise, I know of -- I know of no 100 tonne bollard pull tractor tugs in this area.
3725. **MR. AL FLOTRE:** And I -- I think that's an important point too because we discussed tractor tugs as a tool in -- in mitigation and these tugs as a result of participating in this project will be an asset to the region in terms of their capability.
3726. **MR. ROBINSON:** Thank you.
3727. Captain Flotre, I want to just turn a bit to some questions about coast pilots further. What's the minimum training and experience level for -- for a coast pilot?
3728. **MR. AL FLOTRE:** Starting at the absolute minimum, the pilot must have three years at sea as master of a vessel in the pilotage areas.
3729. There is a -- a proviso that with somewhat less of that you can, by doing some special things, get -- allow for your lack of master's time. But the equivalency is that it would be three years master's time before you would be allowed to write -- you have to have currency in a minimum of two areas of -- of the pilotage authority's range.
3730. So there's four areas in the coast and you must have currency or -- or have sailed extensively within two of those four pilotage areas.
3731. But once you've qualified and -- and this is not an easy process -- your sea time is reviewed and -- and checked and then you go into a psycho-social analysis, it takes a couple of days. But there is a very severe medical requirement to qualify to write the -- the pilotage exam.
3732. At that point in time you would write the quote "exams". They consist of a three-hour written paper on general seamanship knowledge, and followed by another three-hour local knowledge paper, which is a written paper where you would be asked to describe or fill in blank charts of the coast or even draw sketch charts of the coast. And, as well as an abundance of other questions regarding physical characteristics of depths of water, heights of overhead obstructions, et cetera.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3733. If you pass those two exams you would move onto a three and a half hour oral exam in front of a five-man committee where you would be asked to -- to qualify your knowledge and regulations and rules and voyage. But most importantly you would be asked by the examiner to, from your memory, take a ship from a certain place in B.C. and deliver it at another place in B.C., describing all aspects of your voyage.
3734. Two of these -- or three of these examiners, the chairman and two others, are B.C. Coast Pilots. There is the President of the Pilotage Authority and there is a master mariner who has served as a Department of Transportation Mariner on that examination committee.
3735. Being successful with the -- the exam process and being accepted onto the waiting list for apprentice pilots, you would stay on that list until the time came that your services were required and then you would go through a six-month period of riding with pilots, covering a set number of voyages over a six-month period.
3736. And then during -- somewhere along in that six-month period, you would also go for simulator training where you would pilot ships in the simulator. And you would go to man-modelled training where these are exact scale models that you actually go on board on a lake and you have all kinds of scenarios that you can do, including tug escort, narrow channels, berthing.
3737. Having completed all that in your six month apprenticeship, you are given a limited license for one year where your progress is closely monitored. And at the end of one year of piloting, you are then given an unlimited license with restrictions on the size of ships. So it takes almost seven years to become fully qualified for large cruise ships and large vessels such as these VLCCs.
3738. **MR. MICHAEL COWDELL:** We would note that the Pacific Pilotage Authority, in their letter, also discussed the ongoing training that on average they spend over \$500,000 per annum on training. And in 2010, when you're engaged in amending the tanker requirements for Vancouver Harbour, they spent 1.2 million in training.
3739. And they go on to note that all pilots, both senior and junior, have to attend a training establishment at least once every five years. And that this is over and above any training that is deemed necessary as a result of proposed changes or new projects or vessels.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3740. And I guess I'd also point out that in the above page, the -- this training seems to work because they note that in 2011 they -- the pilots handled 12,144 ships and had four minor issues for a 99.97 percent success ratio.
3741. **MR. ROBINSON:** Thank you.
3742. I think you answered this, Captain Flotre, just in the end of your last answer, that at the seven-year point, you have, in effect, an unrestricted license. What I was going to ask you is if there was any special certification for, you know, Aframax, Suezmax, VLC tankers or is it just that at seven years you're qualified for anything of any size at that point?
3743. **MR. AL FLOTRE:** There is a stipulation. It probably takes five years to become unrestricted on regular cargo vessels and it's the additional two years that are required to have before you are unlimited on cruise ships.
3744. We don't have any VLCCs at present here. And I'm not aware of what may be in plans for the authority or the pilots for a requirement on the VLCCs which are coming down the road. But they already have started the training -- the simulated training in the use of escort tugs, with a view of having 48 fully trained pilots before the commencement date of this project.
3745. **MR. ROBINSON:** Captain Flotre, in your -- I believe it was a response that you wrote on human navigation error. You said that the pilot would be a senior member of B.C. Coast Pilots Limited. When you say "senior member", are you just referring to the fact that they've completed this seven years and are fully certified or were you thinking something else when you said "senior member"?
3746. **MR. AL FLOTRE:** No, I was thinking, without knowing, what the future requirements might be for a VLCC tanker but it would be a senior member who would have reached that qualification, whatever it may be.
3747. **MR. ROBINSON:** So at this point, we don't know how many coast pilots are senior members or will be senior members by the time this project is in place?
3748. **MR. MICHAEL COWDELL:** I think that's a question that would probably be best put to the Pacific Pilotage Authority, given they are the ones that

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

are responsible for pilotage on the -- on Canada's west coast.

3749. **MR. ROBINSON:** Okay. Let me just reword this then. Captain Flotre has said the pilot will be a senior member of coast -- B.C. Coast Pilots Limited and I'm just trying to figure out what the definition is of "senior member". Maybe you could give me the definition since you used the phrase.
3750. **MR. AL FLOTRE:** I think I just did that because I don't know what the requirement is going to be for a VLCC tanker.
3751. **MR. ROBINSON:** Okay.
3752. **MR. AL FLOTRE:** But I would -- you know, it most obviously will be a senior member of the Pilotage Authority.
3753. **MR. MICHAEL COWDELL:** The Pacific Pilotage Authority's letter of comment to the Panel notes that, however, there are sufficient senior pilots to handle the expected VLCCs.
3754. **MR. ROBINSON:** And if I'm correct, at this point, no member -- no pilot, senior or junior has piloted a VLCC to Kitimat; is that correct?
3755. **MR. AL FLOTRE:** That's correct. No one has. Pilots do though have a lot of experience in handling similar sized ships in more demanding areas and referring to the large bulky coal ships who were very close in tonnage to the VLCC that transit in and out of Prince Rupert Harbour with all of its hazards, and in and out of Vancouver with all of its currents. Both instances more dangerous and challenging waters than Kitimat will be.
3756. **MR. MICHAEL COWDELL:** I would note that the Port of Prince Rupert this year saw a 350-metre long container ship call it the Fairview Container Terminal. So there are vessels of VLCC size calling at ports on the north coast currently.
3757. **MR. ROBINSON:** I'm sorry, I missed it. Which port was that at that it went into?
3758. **MR. MICHAEL COWDELL:** It was at the Port of Prince Rupert, the Fairview Terminal was a container ship 350 metres long.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3759. **MR. ROBINSON:** Thank you.

3760. When a tanker is travelling in the confined channel area and has a pilot on board, who has the ultimate responsibility for the safe passage of the vessel? Is it the pilot or the master of the tanker?

3761. **MR. AL FLOTRE:** In B.C. Coast Pilotage waters, the first part -- answer to that question is that the pilot must have conduct of the ship. That is subject to if the master of the ship has concerns about the pilot's actions and they must be justifiable, he has the right to take the conduct away from the pilot.

3762. That entails him making a report to the Pilotage Authority about the circumstances and puts him in a place where he may be subject to heavy fines.

3763. So the -- from my experience, in my years, this conduct was never taken away from me and so in -- you can rest assured that it will be a B.C. Coast pilot who is navigating the ship in the compulsory pilotage waters.

3764. **MR. ROBINSON:** Madam Chair, this is sort of a natural break in my questions. If you wanted to take a break this afternoon or I'm happy to carry on, whichever.

3765. **THE CHAIRPERSON:** I think let's take a stretch break and so we'll be back for 2:30, please.

--- Upon recessing at 14:13 p.m./L'audience est suspendue à 14h13

--- Upon resuming at 2:29 p.m./L'audience est reprise à 14h29

3766. **THE CHAIRPERSON:** Back right on time. I think people are coming back earlier too. It's even better than on time. Thank you very much.

3767. Good afternoon, Mr. Shannon. Do you have something you wish to raise?

3768. **MR. SHANNON:** Yes. Good afternoon. I'm Dave Shannon with Douglas Channel Watch. Obviously we won't be fitting in the rest of the afternoon it seems.

3769. I just wanted to advise the Panel -- both panels and other intervenors that our time will consist of two hours for Cheryl Brown and an hour and a half

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

for myself. So that will be three and a half hours in total for Douglas Channel Watch.

3770. **THE CHAIRPERSON:** So, Mr. Shannon. I'm correct in understanding that that is opposed to the two-hour estimate that you had provided?

3771. **MR. SHANNON:** That's correct.

3772. **THE CHAIRPERSON:** Thank you, Mr. Shannon, for advising us.

3773. **MR. SHANNON:** Okay.

3774. **THE CHAIRPERSON:** Mr. Robinson, please continue.

3775. **MR. ROBINSON:** Thank you.

JOHN CARRUTHERS: Resumed

JERRY ASPLAND: Resumed

JENS BAY: Resumed

AUDUN BRANDSAETER: Resumed

DAVID FISSEL: Resumed

AL FLOTRE: Resumed

KEITH MICHEL: Resumed

STEVEN SCALZO: Resumed

THOMAS WOOD: Resumed

MICHAEL COWDELL: Resumed

HENRIK KOFOED-HANSEN: Resumed

3776. **MR. AL FLOTRE:** Madam Chair, if I could interrupt. Sorry.

3777. My colleagues asked me to clarify something about the fines for taking the conduct of the vessel away from the pilot without cause, and I used the word "he" and I should have clarified that that it's the captain who is subject to the fines.

**--- EXAMINATION BY/INTERROGATOIRE PAR MR. ROBINSON:
(Continued/Suite)**

3778. **MR. ROBINSON:** Thank you.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3779. Mr. Bay, B23-18, which is the manoeuvring study, indicates that there were 170 real-time runs made. And when I tally up the runs in B23-23 and B23-24, I come up with 148 runs. Were some runs excluded from the report or am I miscounting?
3780. **MR. JENS BAY:** Actually, I think it's because we also did this arrest study where the pilots were not participating. So that's what makes the difference.
3781. **MR. ROBINSON:** Okay. And the results of those arrest studies are not in the ---
3782. **MR. JENS BAY:** Yes, they are in the report.
3783. **MR. ROBINSON:** Are they in ---
3784. **MR. JENS BAY:** They are. They're mentioned in actually both executive summary, the one we are looking at, but they are more in details in the -- what we call the main report.
3785. **MR. ROBINSON:** Okay. And are they included in the appendices, the D appendices?
3786. **MR. JENS BAY:** The track part are not but ---
3787. **MR. ROBINSON:** Okay.
3788. **MR. JENS BAY:** --- results of the stop distance are in taper form.
3789. **MR. ROBINSON:** Okay. Thank you.
3790. You mentioned on Wednesday, you referred that there were some additional simulations that were run after 2010, involving, if I remember correctly, Captains Wood, Aspland and Flotre, are those simulation results available?
3791. **MR. JENS BAY:** We have not made any of reports of those yet but the data is there.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3792. **MR. ROBINSON:** Do you anticipate making a report on those?
3793. **MR. JENS BAY:** That would be entirely up to Northern Gateway.
3794. **MR. ROBINSON:** Does anyone at Northern Gateway want to respond whether there's an intention to have those results put in a report?
3795. **MR. AL FLOTRE:** If I could mention, being one of the participants, those particular simulations were done to familiarize us with the simulator and the results, and were not done with intention of doing a statistical report.
3796. **MR. ROBINSON:** Okay. Did either Mr. Carruthers or Mr. Cowdell want to respond?
3797. **MR. ROBINSON:** Nothing further.
3798. **MR. ROBINSON:** Okay. Thank you.
3799. The pilots that were involved in the 170 or 148 runs, what experience level did they have in piloting VLCCs?
3800. **MR. AL FLOTRE:** There are no pilots on the B.C. coast who have experience piloting VLCCs because there are no VLCCs on the coast. They do have, though, as I mentioned before, experience piloting similar sized vessels in the waters of B.C., which happen to be more challenging than the route to Kitimat.
3801. **MR. ROBINSON:** Thank you.
3802. **MR. JENS BAY:** If I may just add, during my 20 years with FORCE doing the simulation studies, I've probably met about 200 pilots I would guess. The B.C. coast pilot I have met five here from -- in connection with this project and two other B.C. coast pilots in connection with another project.
3803. In connection with a simulation that I was conducting in 2008 and '09, one of the things that we always do and one of the things that, by the way, is very characteristic of pilots, is that they jump from one ship to another, and they have a way of very quickly picking up how does a ship -- a specific ship move.
3804. It's quite natural that the pilot when he comes onboard he will have a

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

short talk with the captain or the chief officer just to know how does the ship behave, how does it turn, and so forth.

3805. And what I experienced during the simulation when we started the initial runs, we would put the tankers out north of Browning Entrance where you have a little bit of open water so they had a fair chance to get, what do they say, the sense of how these VLCC they handle.
3806. And they did exactly what I expect them to do; they would do some small turns, some small zigzags and get a little bit of the feeling how quickly does this ship respond to the rudder, that's really what the pilot want to know.
3807. And I can also add that in my experience, the behaviour I see when people -- when navigators are on the simulator compared to real life -- because I've been doing quite a few sailings, what I call onsite visits and simply watch how a navigator hands the ship in the simulator and in real life. And there is a, I would say, almost one to one correlation and that's also what, you know, our captains have experienced. People act the same way on the simulator as they do in real life.
3808. So in that sense, you know, I think that the pilot did a tremendously good job and they got used to the larger ship that they are not used to at the moment. So they handle the tankers really well.
3809. **MR. MICHAEL COWDELL:** I would just add that we went -- in our response to JRP IR 11.1B we've provided quite a bit of information on potential pilot training that could be carried out for tug escort.
3810. And there's a point in our response that notes that the Pacific Pilotage Authority is already planning training and that that could include full mission bridge simulations like the ones that carried out in -- at FORCE Technologies, also man-model training available in Poland and France, and also live training on VLCCs as large as 410,000 tonnes in France.
3811. So these pilots will have gone through a training program before this project starts.
3812. **MR. ROBINSON:** Has the Pilotage Authority committed to live training -- is that a commitment to live training on a VLCC in this area before Northern Gateway starts up?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3813. **MR. MICHAEL COWDELL:** I don't think that's what we said, and it's our understanding is communicated in this IR response and any further questions would probably be best answered by the Pacific Pilotage Authority.

3814. **MR. ROBINSON:** Is it Northern Gateway's intention that pilots will have done live training on a VLCC in the Kitimat area prior to the start up?

3815. **MR. AL FLOTRE:** The training of pilots is the responsibility of the Pilotage Authority. They have that responsibility given to them by law and they have to consider the whole coast, not Northern Gateway Project.

3816. So the pilots are in the process, as mentioned by Mr. Cowdell, of arranging -- they have the permission to go aboard VLCCs in Marseilles, France. So they're looking ahead, they have tankers that are going to be working in the south coast and also these VL -- the LNG tankers coming, which is a new type of vessel, and their commitment is to be fully prepared for any eventuality.

3817. So they're -- the training programs are either in place, is started or in the planning state.

3818. **MR. ROBINSON:** Just from Northern Gateway's point of view, it would seem to me that you don't want the first ship to pull up to your berth to be a loaded -- or to be a loaded, say, condensate tanker. So is Northern Gateway going to do its own, you know, sort of live training or dry runs with a, you know, a fully ballasted vessel or ---

3819. **MR. MICHAEL COWDELL:** Could we please bring up Exhibit B101-2, page -- Adobe page 2 to 3? If the Regulatory Officer would be so kind. Thank you.

3820. **THE CHAIRPERSON:** Mr. Robinson, had you finished your question?

3821. **MR. ROBINSON:** I think I had.

3822. **THE CHAIRPERSON:** Oh, okay.

3823. **MR. ROBINSON:** I think I ---

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3824. **THE CHAIRPERSON:** I thought that I -- I must have ---
3825. **MR. ROBINSON:** --- maybe I trailed off. My intent was just asking if Northern Gateway was saying that they were going to do a, you know, a live training with a fully loaded -- obviously not probably with condensate, but ballasted with water or something.
3826. **MR. MICHAEL COWDELL:** Can we please scroll down to the bottom of the response? Keep going, sorry. So right -- I'm sorry, if you can stop right there. If we could just scroll up a little bit further -- sorry -- the last paragraph on -- that's shown on the screen right:
- 'The second part of the Pilot and tug Master training would involve the use of the Project escort and docking tugs and a ballasted tanker in...'*
3827. **MR. ROBINSON:** Mr. Cowdell, I'm sorry.
3828. **MR. MICHAEL COWDELL:** Sorry.
3829. **MR. ROBINSON:** You're just going to have to slow down for the ---
3830. **MR. MICHAEL COWDELL:** Sorry. I apologize.
3831. **THE CHAIRPERSON:** And it's not necessary to read the response you can just point us to the record also.
3832. **MR. MICHAEL COWDELL:** The paragraph starting with "The second part of the Pilot and tug Master training" -- that's what I wanted to get at. I think describes the project's intent to carry out some training with it -- the tug escorts and the pilots ahead of operations.
3833. But of course, we can't carry out that unilaterally, we obviously need the agreement of the Pacific Pilotage Authority and we haven't got down to those detailed discussions yet. Obviously, I mean this is a little while down the road.
3834. **MR. ROBINSON:** Thank you. That was the clarity I was looking for.
3835. Mr. Bay, in B23-22, which is the -- sort of the listing of all the

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

simulation runs, it indicates that the maximum wave height simulated in the 148 simulations was 5.0 metres; is that correct, that was the maximum wave height that was in any of the simulations?

3836. **MR. JENS BAY:** Could you just direct me -- so where do you see that? What page is that?
3837. **MR. ROBINSON:** Well, it's B23-22 is an 11-page summary of the -- of all the runs. And it -- in the sort of the centre, I guess, the one, two, three, four, five, six, seven ---
3838. **MR. JENS BAY:** Yeah.
3839. **MR. ROBINSON:** --- eighth column over it says "Wave Height".
3840. **MR. JENS BAY:** I found it.
3841. **MR. ROBINSON:** Okay. Good
3842. **MR. JENS BAY:** Yeah.
3843. **MR. ROBINSON:** Yeah. Thank you.
3844. I was just confirming that in the 148 runs that are in Table B23-22, the maximum wave height that was modeled in any situation was 5 metres; is that correct?
3845. **MR. JENS BAY:** I mean the -- all the navigational runs we did was within the compulsory pilot area, we were not out in open sea. And it is correct that the largest one which was what you say outside of the confined channel was 5 metres.
3846. **MR. ROBINSON:** Okay, thank you.
3847. And in that same list, if we keep that up, it indicates that for all of the simulations, the visibility was recorded as either good or three to five nautical miles; is that correct?
3848. **MR. JENS BAY:** I believe we have an IR on that question.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3849. We just need to find it.

3850. **MR. ROBINSON:** Okay.

--- (A short pause/Courte pause)

3851. **MR. JENS BAY:** Could you just repeat the question please?

3852. **MR. ROBINSON:** My question is I believe that all of the simulations listed in B23-22 indicate that the visibility was either good or three to five nautical miles. And I'm just asking if that's correct, if I haven't missed something on that table.

3853. **MR. JENS BAY:** The simulation for -- from 2007, '08, and '09, they were carried out with either good or a reduced visibility of 3 to 5 knots. And we had, you know, a question about that.

3854. So one of the things we did when I had -- you know the -- I had two sessions, one session with Captain Wood -- and Captain Wood and Captain Jerry, and we had another session with Captain Jerry and Captain Flotre, each of one week.

3855. We did in fact go through a number of runs where we had reduced the visibility down to .5 of a nautical mile. I have tried to look into the runs from 2007 -- I didn't conduct those -- to find out why they had not used reduced visibility.

3856. And -- and the argument from the pilot was, as we've mentioned before, the radar picture in this area is absolutely fantastic. It's very clear showing the -- the coast line, it shows objects on the water very clear because you have this rugged coast. So -- so they felt that we could have turned off, so to speak, the visual system and they could have navigated on the radar alone. So that was the argument for that.

3857. But -- but you know for the sake of good order, these three gentlemen they have been through the area with low visibility and they can comment on that.

3858. **MR. ROBINSON:** That's -- I was really just asking about the simulations, but if someone else wants to comment.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3859. **MR. AL FLOTRE:** All over the world and all over British Columbia coast vessels do not stop for fog, even thick fog. Vessels transiting from Victoria and back from, do so often in months of September and late August in thick fog.
3860. The truth of the matter is on a large vessel like this the instrumentation actually gives you a better idea of your position and the -- your distance to other vessels in the area than you can -- can figure out by using the eye -- human eyesight.
3861. Because -- because of that in the brightest day, pilots will be closely monitoring the radar and -- and the GPS systems on board to -- to make sure that they have a correct idea of their exact position and where they're going.
3862. **MR. JENS BAY:** Could I just make a correction? I think I misspoke and said three to five knots; it was three to five nautical miles obviously.
3863. Sorry about that.
3864. **MR. THOMAS WOOD:** Okay. I -- I would like to just add that the old days of needing to have a visible horizon to be able to navigate have long gone.
3865. Shipmasters today go across oceans quite safely in thick fog all the way. I personally have experienced a 20-day one run -- sorry, a 20-day run -- 21-day run -- sorry, from Dariana in China to San Francisco and during that 21 days was unable to see anything at all the entire -- entire way, apart from the ship of course I was on.
3866. But in terms of fog, it was thick fog the entire voyage for 21 days and this is quite normal. And as far as navigating in the confined channels, the CCA, yes I totally agree the -- the definition on radar allows us to safely navigate up there.
3867. And I might add, that ships carry actually two types of radar which give different characteristics to the experienced eye of the navigator about what he's looking at. One of these is specially designed, shall we say, to be able to operate when there's precipitation both of -- of rain and snow.
3868. Thank you.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3869. **MR. STEVEN SCALZO:** The tugs that'll be also in escort with the ships are outfitted with a similar suite of electronics that we've talked about before and are also capable of operating and do operate in -- in periods of reduced visibility.

3870. In particular, probably the best example is sort of similar conditions down on Puget Sound, where we've been escorting tankers for quite a few years and in similar fog related conditions.

3871. **MR. ROBINSON:** Thank you.

3872. Mr. Bay, did you run any simulations in which there was a failure of communication system between the tanker and -- and the tug? That is the tanker captain could not communicate to the tug captain.

3873. **MR. JENS BAY:** I believe we had a couple of instances where the tug captain was somewhat slow on the VHF. I don't if he was pouring coffee or whether he had dozed off a little bit but there was some delays at several -- several times. But a direct break-down in communication, no.

3874. **MR. ROBINSON:** And did you run any simulations in which the tanker was required to take some evasive action in order to avoid a fishing or recreational vessel?

3875. **MR. JENS BAY:** Yes we did, on several occasions. For example the runs in Wright Sound we had quite a bit of a traffic jam there.

3876. **MR. ROBINSON:** Thank you.

3877. Did you run any simulations in which the --

3878. Oh, sorry.

3879. **MR. JERRY ASPLAND:** I would just like to add to that. In the runs that I was involved, yes we put -- had a lot of traffic in. But -- but I wouldn't want to -- I wouldn't want to -- someone to assume that this wasn't controlled.

3880. It was very, very controlled and we passed good distances and I felt that it was a very good exercise.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3881. **MR. AL FLOTRE:** And if I could also add to that. In the present day time tugboat operators are those that provide service to ship docking and the pilots have come up with ship's whistle signals in the case of such eventuality.
3882. And I'm -- you know -- positive that sort of program will work -- will be established. So that if you do lose radio communication you -- the pilot starts to use longs and short blasts on the ship's whistle to give instructions to the -- to the tugboat. So it -- it's not a complete lack of communication if such an event occurs.
3883. **MR. STEVEN SCALZO:** And also in terms of the normal outfitting of the tugs, and this is pretty much industry-wide, of course the tugs have redundant radio systems for communications with the pilots.
3884. But in addition to that most all tugs carry at least two separate portable battery powered communication systems also.
3885. **MR. ROBINSON:** Thank you.
3886. I -- I got a little confused between Mr. Bay's answer and Captain Aspland's answer. In the simulations were -- where you were indicating there was sort of heavy traffic in Wright Sound. But I was asking about a -- a ship having to take sudden evasive action; was that modelled in any of the simulations?
3887. **MR. JENS BAY:** Maybe it would be -- you know -- useful to bring up an example of a run in -- in Wright Sound. So just let me find one.
3888. Ms. Gilbert, if you could bring up B23-24, and then go to page 5? I don't have the Adobe number.
3889. Yeah, let's just pull it down so we can see the track plots. A little bit up please, a little bit up. Fine, that's good.
3890. This is an example, if you take a look at it -- and I remember when we did this, the pilots say well, this would be a very awkward situation to see so much traffic.
3891. Basically, the situation we have is we have a loaded tanker outbound; if you look at the top of the track plot, to his starboard side, there's actually a

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

- smaller vessel going on a parallel course. From the south up through Lewis Passage, you have a ballasted tanker come; from your left side coming down, Grenville Channel, you have BC Ferry coming.
3892. So this is the loaded tanker outbound, and here's the ballasted tanker inbound, here is a BC Ferry coming and over here we have a -- I think it was a tug and a tow. No, it's actually a coaster going this way up and here were we had a tug and tow. You can see this is going very slow.
3893. So this is what we could call a congested situation at Wright Sound, and I think what I persuade the pilots to do is think 10, 20, 30 years ahead of time where there's more traffic.
3894. I mean, this is what they say, very unusual, but for the sake of it, we wanted to do a congested situation to see how the tanker handles.
3895. Now, the tanker coming down here, he actually has to yield for the BC Ferry, according to the yield rules. The tanker coming up here, as you can see, he's trying to go behind the tug and tow so he had to do a zigzag manoeuvre and once -- at this point here, the tug and tow were here, the BC Ferry was here, so we stopped the simulation. The situation was resolved.
3896. So you talk about a sudden evasive manoeuvre, I mean the pilot on this tanker could see for a while that there was a tug and tow so it was a planned evasive action. I don't think if this is helpful.
3897. **MR. ROBINSON:** Thank is helpful. Thank you.
3898. I guess for a ship, you have -- as you said from your radar and other equipment, you would have some idea of what vessels are in the area and what you're looking at.
3899. So I'll ask a similar question then, is -- did you simulate any situations in which a tanker was required to take sudden evasive action because -- to avoid whales, where you may not have been aware that they were in the area, they suddenly surfaced?
3900. **MR. MICHAEL COWDELL:** I don't think that was the purpose of this report. I mean, the purpose of this report was to demonstrate the navigability of the routes and to also simulate some unusual situations that would be further

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

exercised as part of the pilot and tug training that would be completed before operations.

3901. So, no, those type of situations weren't part of the simulations.
3902. **MR. ROBINSON:** Thank you.
3903. **MR. JENS BAY:** But I could add, we did some runs that we call slow speeding runs, where we simply tested how slow can we sail with a tanker and still keep in control. And the idea was to simulate a situation where you had some kind of an object in front of you that you should avoid. So we have kind of exercised how slow can you go.
3904. **MR. ROBINSON:** Thank you.
3905. I wanted to look at just a couple of specific runs and just -- this is just for clarification for my purposes; B23-23, page 42, which is Run 403. It's the simulation of a loaded VLCC in Lewis Passage, it suffers an engine failure and the -- I just wanted to go down to the comments which are at the bottom below the diagram.
3906. It's just -- if you could just read the last line and then I'll ask you the question, if you can see that from there.
3907. So in this situation, is my understanding correct that the tug used maximum power in order to speed down and steer the vessel? I imagine that maybe meant slow down or breaking the speed down -- I see -- and steer the vessel. So the tug used maximum power in this situation; is that correct?
3908. **MR. JENS BAY:** First of all, we used Lewis Passage here because the pilots felt this was a good area to test emergencies.
3909. And the way we did it, you can actually see the -- if we just pull it down a little bit Ms. -- yes, thank you. The initial situation that the tanker is doing 10 knots, the escort tug is right behind, idling so to speak, it's not doing anything actively, and the pilot is coming down it's initiating a port turn.
3910. So at this point here, the pilot is initiating port turn because it has to go around. Now, then we get into a situation where the rudder is actually stuck to port and it takes him, you know, a little while. I think we let about 30 to 45

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

- second pass by where he didn't do anything, a delay, and once he realized that he has a problem, he contacted the tugboat right away and asked the tugboat to go on his port side in order to compensate for that port turn.
3911. So the tug actually pulled the stern to the port so the bow will go to the starboard. That was the purpose. In this situation, what we would expect the pilot to do is to get the situation under control ASAP.
3912. So there's only one way to do that, that's to apply full power and we consider that really good resource management. I mean, he could have applied 75 percent and then had 25 in spares but that's not good resource management. We want him to see that he applies full power until the situation is under control.
3913. He got the situation under control. You can see he actually managed to turn the ship to starboard and -- sorry. And at that time, the pilot said "I'm okay, we can stop here". Had we continued, at some point, the pilot would have eased off the load on the tug so it's only a practical matter that it was done with full power at all time.
3914. **MR. STEVEN SCALZO:** I can only support what captain said, that the -- that Mr. Bays said, excuse me -- that the application of full power for the use of escort tugs is a routine.
3915. The vessels are built to utilize full power at the direction of the pilots, and in fact, the horsepower ratings are based on that, as is their performance.
3916. And tugs of similar power and capability can routinely operate day in and day out at full power. So in this strategy, to arrest a situation, the application of full power is normal and the tugs are capable of doing that routinely and do do that.
3917. **MR. ROBINSON:** Thank you.
3918. I wonder if we can now turn to B23-24 -- B23-24, page 30, and this is a ballasted VLCC berthing simulation at the Kitimat Terminal. And this one involved one escort tug and three smaller tugs; is that correct?
3919. **MR. JENS BAY:** Yeah, at that time that was the method we used to keep the escort tug connected, send a lead aft and then it got assisted from three other harbour tugs. That was the way we did it at that time.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3920. **MR. ROBINSON:** Okay. And this simulation indicates the pilot was unable to complete the manoeuvre and the simulation was ended. Is that the case; is that correct? Did I understand that correct?

3921. **MR. CROWTHER:** Mr. Robinson, just for my benefit, can you -- based on the paragraph that's on display here, I don't understand the question that the simulation was not completed successfully, which I think is the way you worded it. Can you clarify your reference for me please?

3922. **MR. ROBINSON:** Yes, I'm just actually just looking that up, so.

3923. If we go down below the diagram, and the first paragraph below the diagram and -- maybe I'll just let you read it but the sentence I think that particularly is referred to is the last couple where it says:

“The pilot ordered the tugs to lift off full and ordered the vessel's own rudder full starboard and engine full ahead. However, the drift forces were too high, and the arrival was abandoned and the simulation stopped.”

3924. **MR. JENS BAY:** First of all, a general comment. One of the great things about the simulator is that you can do experiments and, for example, find out what is the best strategy for approaching a berth. And that is what we typically do in respect to Mr. Gunn from yesterday, he said that all our runs were successfully, and I couldn't quite remember but this is maybe one where you will say, “Well, it was not necessarily a failure but it could have been performed differently”.

3925. So we use the simulator to find out which is the best strategy. And the conclusion on this one was that the strategy that the pilot applied here was not optimal.

3926. If we can just scroll up a little bit so we can see the track plot. The strategy that we developed was that the tanker should in fact, go up parallel to the coastline, about two to three ship lengths from the berth. That would be actually be out here, okay? And then stop the tanker, turn it around 180 degrees and then push it in parallel to the berth. That is ---

3927. **MR. CROWTHER:** And again, Mr. Bay, just for the sake of the

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

transcript which won't, unfortunately, record the flashes of laser printer. You're indicating that more toward the centre of the channel where the tanker would begin its turn, et cetera. Have I got that correctly?

3928. **MR. JENS BAY:** Yes, sorry, that's correct -- about -- not necessarily the middle but at least 600 metres off the berth -- 6 to 900 metres off the berth.

3929. **MR. ROBINSON:** Thank you.

3930. **MR. MICHAEL COWDELL:** And just to be clear, the -- as has just been discussed, these are tests. These -- the TERMPOL submission -- the studies that were submitted to Transport Canada, talk about the intended berthing strategy at the Kitimat Terminal. And of course, that would also be developed in more detail during the detailed planning and design phase.

3931. So I don't believe that this is the intended berthing strategy obviously and that is described in more detail -- I was trying to find the document but I can't find it offhand here.

3932. **MR. ROBINSON:** Mr. Bay, when I look at the listing of the 148 simulations that's in B23-22, I see that 68 of those simulations involved an escort tug which was 125 tonne bollard pull tug. Is that, subject to checking my numbers, does that seem reasonable? That many of the simulations used 125 bollard pull tug?

--- (A short pause/Courte pause)

3933. **MR. JENS BAY:** Mr. Robinson, your number is probably right. I'm not going to check it right now.

3934. But it is true that in 2007 and 2008 simulations, we did use 125 tonne bollard pull tug that was at that time estimated as the ideal size. In 2009, the last set of simulations, we investigated that a little bit further and found that 100 tonne tug could do the job with the same safety level as we could do with 125 tonne. So that's why.

3935. **MR. ROBINSON:** But referring to the 2007 and 2008 simulations, will you agree that you were unable, through those simulations, to confirm that the same manoeuvres could have been done with 100 bollard pull tug because you didn't run them with 100 bollard pull tug?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3936. **MR. JENS BAY:** You just need to clarify that, please?
3937. **MR. ROBINSON:** Well, I'm just saying that there were -- you're saying in 2007/2008 the runs were done with 125 tonne bollard pull tug. And I'm saying you would be unable then to confirm that those same manoeuvres that were done in those runs could have been done with 100 bollard pull.
3938. **MR. STEVEN SCALZO:** The manoeuvres that were done in the tug study were done with 100 tonne bollard pull tug and the 100 tonne bollard pull tug were -- was designed for the purposes of the project and produced more capability than the 125 tonne tug in the simulations.
3939. The -- again, this discussion of bollard pull and a lift and steering forces, in particular while the vessel is underway, the -- I think the FORCE study that Mr. Bay is talking about was done primarily to look at the, you know, the manoeuvring of the ship where our study was done to look at controlling the ship in the waterway, in the environment that it's in as it's docking and/or as it's operating in that waterway -- using the actual forces of the model tug.
3940. **MR. ROBINSON:** Thank you.
3941. **MR. JENS BAY:** I could just add, Mr. Robinson, that the simulation runs we did in 2009 with 100 tonne bollard pull was actually a repetition of the major runs from 2007 and 2008. So we did enact -- in fact, prove that we could do those runs with 100 tonne. So it was more or less the same scenarios and we actually spent an awful lot of time to do a number of different emergencies. So we -- a great part of that study was exercising emergencies and see the tug capability of 100 tonne bollard pull tug.
3942. **MR. ROBINSON:** Thank you.
3943. I do have a few questions now that I believe are likely for Mr. Brandsaeter but we'll pursue there.
3944. I wonder if we could bring up B23-9, page 10, Figure 3.1, which is a graph that we looked at, I believe, on a couple of occasions in the past -- past few days.
3945. Actually I believe there was a -- one bullet which is just below this that

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

went -- has a more detailed view of 1990 to 2006, is that -- would you recall what Adobe page that was on? Anybody on the -- we can work with this one I think.

3946. Actually, could we go to page 14, I think that might be the diagram that I'm actually looking for. This is the one, yes. Thank you. This is the one I was thinking of.
3947. And there's been a lot of discussion about the fact that the -- just to clarify, this is the number of incidents or number of total losses per thousand ship years, is that right? Is that the measurement that's on here? The number of spills per ---
3948. **MR. AUDUN BRANDSAETER:** That is number of spills that has been recorded, so that's not the correct graph if you're looking for the ---
3949. **MR. ROBINSON:** Okay. I think maybe ---
3950. **MR. AUDUN BRANDSAETER:** --- total losses.
3951. **MR. ROBINSON:** --- it was the one above then on page 10. If we go back to page 10. Okay. So this is the incidents per thousand ship years. Thank you.
3952. So am I correct that even though the number of losses per thousand ship years is decreasing, you could have a situation where the total number of incidents actually increases simply because there's more ship traffic; is that correct?
3953. **MR. AUDUN BRANDSAETER:** With the significant decrease that we have seen over the past years we would need a tremendous increase in world traffic if we should see an increase due to increased number of vessels.
3954. This shows a relatively clear trend towards a lower number rather than a higher number, and as such would have to multiply it by a very high number of ships. But theoretically of course if the total world traffic was increased by a factor of five it would be a lot closer to increase the number of accidents, approximately by a factor of five I would assume.
3955. **MR. ROBINSON:** Could we go to -- now go down to page 14, and I believe it's right at the top of the page.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3956. I'll just let you read that paragraph that's above the diagram there.

--- (A short pause/Courte pause)

3957. **MR. ROBINSON:** Would you agree then, as it says there, that the spikes that we see in Figure 4-4 below are partly explained by increases in seaborne shipments of oil and corresponding number of operating oil tankers, as it says? So that partly explains the spikes that we see in this diagram; is that correct?

3958. **MR. AUDUN BRANDSAETER:** The increase in shipping traffic has been quite uniform over the last year so I think it's not likely that it's really an increase in ship traffic in those few years, it's rather random cycle exchanges that increase or have caused these spikes I would assume. So I think that statement is somewhat inaccurate.

3959. **MR. ROBINSON:** Thank you.

3960. Mr. Brandsaeter, you made an interesting comment on -- I believe it was on Tuesday, and I think you made it sort of in passing, and that was that a change in incident occurrence would likely be a function of the square of the change in traffic density.

3961. So just so I understand that, you would be saying that if there was, for example, a 2 percent increase in traffic density, you would expect perhaps a 4 percent increase in incident occurrence. Is that what you meant when you said -- when you referred to it as a square of the square function?

3962. **MR. AUDUN BRANDSAETER:** First of all, it's important to remember that we were then talking about collisions.

3963. **MR. ROBINSON:** Not oil spills.

3964. **MR. AUDUN BRANDSAETER:** All with regard to collisions, we would see a clear relation between the traffic density and the incident frequency.

3965. Next, I doubt that if you try to multiply 1.02 by 1.02 you would get 1.04. That is not correct mathematics. You would still have it very, very close to 1.02. So two -- squaring two is not only the (inaudible). So if you double the

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

traffic, you will probably see an increase of the order of four times the frequency of accidents but with an increase of 2 percent and if you square that, that will be almost 2 percent only.

3966. **MR. ROBINSON:** But as a general principle, you would agree with me, wouldn't you, that as traffic density increases, the likelihood of incidents increases? And I'm not talking spill incident. I'm just talking, you know, likelihood of collision I think you were referring to at this point.

3967. **MR. AUDUN BRANDSAETER:** I can agree with you that an increase in traffic density is likely to also cause an increase in collision probability and just as we will see on the roads with regard to collision of cars.

3968. **MR. KEITH MICHEL:** That is, of course, assuming that everything else remains constant. In fact, we've seen a reduction in collisions over the years, and that's because things don't remain constant, that there has been improvements. You've heard about many of them in ECDIS and radar and in ship management.

3969. So if you look at the entire picture, you know, the density of traffic alone is not the major factor, but if you do a mathematical analysis, holding everything else constant, and you are evaluating crossing traffic, then the probability of an encounter goes up with the square -- as a square of the density.

3970. **MR. AL FLOTRE:** I think it's important to note as well is the starting point in the Kitimat route is very low density traffic. And by comparison, the pilot boarding's at Victoria pilot station are six times the number that occurred last year at Triple Island. So if you're looking at small percentage increase in density of traffic you're starting at a very low model.

3971. **MR. ROBINSON:** Thank you.

3972. I wonder if we can go to page 77. This is Table 5.14 -- page 77, sorry. There is no pages. Are we in B23-34? Maybe I'm in the wrong document. There we go. Ah, there is a 77.

3973. If we could -- I don't know if we can collapse it down so we can sort of see that. I don't really need to read the numbers but I would like to get the structure of the table shown here.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3974. Now, this is the sort of the starting point, in my mind, in the QRA, which is the unmitigated -- for collisions anyway this is the starting part, unmitigated scaled collision incident frequency.
3975. And as I look at the QRA we start with these unmitigated, and then in Part 6 of the QRA we add in the spill consequences from collisions and other causes, and then in Part 7 we add in spill consequences from all causes, and in Part 8 it discusses mitigation.
3976. But what I don't see anywhere in this QRA is an answer to the question is what is the probability of collision in any given year for all of the traffic that is travelling to and from the Northern Gateway terminal.
3977. If I understand this table right, these values in the bottom row, the scaled frequency, that is the frequency or predicted frequency of a collision per nautical mile in that segment. Is that correct?
3978. **MR. AUDUN BRANDSAETER:** Yes, as it's stated there, that is correct.
3979. **MR. ROBINSON:** So if I wanted to know the actual potential frequency of a collision involving all the vessels that are travelling back and forth from Northern Gateway in a year, correct me if I'm wrong, I would have to take each of those scaled frequencies multiply it by the number of nautical miles in that segment and then multiply that by the number of potential passages of a vessel through that segment. And then I would have to add them all together across. Is that correct, is that how I would determine the actual potential collision frequency?
3980. **MR. AUDUN BRANDSAETER:** Yes, that is perfectly correct.
3981. **MR. ROBINSON:** And have you done that anywhere so that I don't have to?
3982. **MR. AUDUN BRANDSAETER:** I certainly have it done it, yes but I cannot say immediately whether that is exactly that way to report -- it has been included in the report.
3983. But I take it, from what you say, that you have searched for it and not found it, so probably it's not included.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3984. **MR. ROBINSON:** Could you undertake to do that calculation and report to the Panel?

--- (A short pause/Courte pause)

3985. **MR. MICHAEL COWDELL:** Sorry; we were just trying to look at a couple of other documents.

3986. The -- the QRA was completed the way it was to -- to identify the hazards and -- and to -- to examine the mitigations that could be carried out. It was -- it was presented in the way it -- it was for that reason.

3987. Just -- we're just trying to understand what the purpose would be in -- in providing the calculation that you've outlined that is fairly straightforward to carry out.

3988. **MR. ROBINSON:** Yes. Well, absolutely I will go there. The -- you know this -- this QRA eventually gives us the mitigated probability of oil spills of various sizes.

3989. Now, it seems to me that grounding, collisions, foundering, fire and explosion could have another of other consequences which would be damage to other vessels, damage to property, injury, loss of life but nowhere do we get any analysis of that, which would seem to be significant consequences.

3990. So I guess -- you know -- I can even go further and -- and suggest that if we go to page 82 and Table 5.17, which summarizes these same probabilities for these different purposes, I think it would be useful to know the overall probability of each of these in a year for the Northern Gateway traffic given that it can have a number of consequences other than oil spills.

3991. And that's why once again I'll ask if you'll -- I'll even ask -- broaden my undertaking request, and that is, would you undertake to calculate the annual probability at each of these types of -- of events?

3992. **MR. AUDUN BRANDSAETER:** This might be something I could recommend that Northern Gateway to do at a significantly later stage when the detailing hearing has come forward and -- or at this stage I would consider it premature to go into such details.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

3993. More details with regard to the number of ships in different routes, we discussed earlier, whether might be some uncertainty with regard to the forecasting in which route different tankers would take.

3994. I don't think it would give much additional information at present point of time to -- to do these calculations.

3995. **MR. ROBINSON:** Madam Chair, I'm aware of the time and I -- I only have perhaps one or two short questions to finish off, if you'll allow me another five or 10 minutes.

3996. **THE CHAIRPERSON:** Yes, Mr. Robinson. Just give us a moment though please.

3997. **MR. ROBINSON:** Sure.

--- (A short pause/Courte pause)

3998. **THE CHAIRPERSON:** Thank you very much.

3999. Mr. Robinson, please continue.

4000. **MR. ROBINSON:** In the -- in the marine shipping QRA, B23-34, which I hope is the document we're in, at page 58 -- and I'd have to find the exact location, if you'd just give me a moment.

4001. **MR. AUDUN BRANDSAETER:** Madam Chair, could I just for the information of the Panel, give some additional information just related to the question we were just discussing?

4002. In the errata that we submitted prior to this hearing, we had in fact a correction to do exactly to the Table 5.17 of the QRA because the numbers that are presented are, in fact, the numbers for annual events in those areas, though it's not distributed over the forecast route numbers.

4003. So it's all 220 tankers assumed in each of the segment at the same time. So it's 220 passings, each direction, in all segments, that will give the frequency of incidents, now -- numbers stated as last line as totals in those tables -- in that table.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

4004. **MR. ROBINSON:** So if I follow that correctly, what you're saying, they would have to -- to answer the question I was asking which is what is the probability of a collision involving a vessel from Northern Gateway, in a given year, you would have to adjust those numbers and that would require a more -- a difference calculation than what I suggested earlier.
4005. **MR. AUDUN BRANDSAETER:** No, no sir. Only the last summary, the total number ---
4006. **MR. ROBINSON:** Oh, the summary table. Okay.
4007. **MR. AUDUN BRANDSAETER:** --- is for the frequency of accident. The numbers for each of type accident, they are as indicated in the title on the -- of the table that is scaled frequencies for accident per nautical mile sailed.
4008. **MR. ROBINSON:** Thank you.
4009. **MR. AUDUN BRANDSAETER:** Whereas we had multiplied in number of tankers and the number of nautical miles sailed in the last row but that was by a mistake and is corrected in errata.
4010. **MR. ROBINSON:** Thank you, thank you.
4011. I wonder if we just move down just a bit here to the bullet that's just below the paragraph that's showing. Keep go -- okay, there.
4012. Would you read just to yourselves the first bullet that's sort of in the centre of the page you're at, that starts, "Concern was expressed".
4013. Would you agree that a collision between a recreational or small fishing vessel and a tanker is likely to have devastating results for the smaller vessel and likely minimal impact on the tanker?
4014. **MR. AL FLOTRE:** And this is not from experience of a collision, but instances have occurred with this type of vessel. The vessel is very blunt nosed and in all likelihood, a tanker at 10 -- 12 knots, if it had an interaction with a small fishing vessel, the force field in front of the tanker would just push that vessel aside and probably offer no damage to the smaller vessel.

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

4015. **MR. ROBINSON:** Okay.
4016. **MR. MICHAEL COWDELL:** But again, I would emphasize that with mitigations that we've been discussing this week, we don't see that being a very probable event. In fact, a very, very unlikely event given the tugs that we'll have in place, the land-based radar, and whale spotting vessel and all the other mitigations and AIS.
4017. **MR. ROBINSON:** Okay. But am I correct that nowhere in this QRA have you calculated the probability or consequences of damage to other vessels?
4018. **MR. MICHAEL COWDELL:** That was not the purpose of the -- this risk assessment, as required by the TERMPOL code from Transport Canada. The purpose of the code was to look at -- as the code requests, the purpose of the QRA was to look at hazards to project traffic and marine terminal trans-shipment and to identify possible risk mitigations for those hazards, which we have done.
4019. **MR. ROBINSON:** Has anywhere in this QRA or indeed, in any of Northern Gateway's application or supporting documents, has Northern Gateway calculated the probability of risk and consequences to -- of property damage arising from either grounding, collisions, foundering or fire or other such incidents?
4020. **MR. CROWTHER:** I'm sorry, Mr. Robinson, just for my benefit, property damage to a project vessel?
4021. **MR. ROBINSON:** No, property damage to third-party.
4022. **MR. CROWTHER:** Thank you.
4023. **MR. MICHAEL COWDELL:** I think my previous response is the same response; that was not the purpose of this QRA and it's not what's requested by Transport Canada in the TERMPOL code.
4024. **MR. ROBINSON:** And has anywhere in the QRA or in the application or any supporting documents, has Northern Gateway calculated the risk of injury or loss of life arising out grounding, foundering, collision, fire or any other hazard related to Northern Gateway's shipping?
4025. **MR. CROWTHER:** Again, Mr. Robinson, when you refer to loss of

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

- life, for example, you mean of those who are not aboard the project vessels? I'm sorry; I'm not understanding.
4026. **MR. ROBINSON:** I would include both on the project vessels, on other vessels or on shore.
4027. **MR. CROWTHER:** I appreciate the clarification. Thank you.
4028. **MR. MICHAEL COWDELL:** The same answer would apply; that wasn't the requirement of Transport Canada's TERMPOL code and it was not the purpose of this quantitative risk assessment. This quantitative risk assessment was to look at hazards due to project traffic and to look at mitigation measures.
4029. And I would again emphasize that we've put in place many mitigation measures which have -- we believe, have reduced the risk to as low as reasonably practicable and go well beyond the current regulatory requirements.
4030. **MR. ROBINSON:** Madam Chair, I believe that completes my questioning.
4031. Thank you panel -- witness panel members for your answers. I appreciated your information that you've provided today. Thank you.
4032. **THE CHAIRPERSON:** Thank you, Mr. Robinson.
4033. So we will stop for today, we won't call any further parties this afternoon.
4034. We just have a few things to take care of before we close. Based on the time estimates for the remaining intervenors to question this witness panel, it appears that the questioning will continue into Saturday, the 6th of April.
4035. Mr. Crowther, I believe you'd indicated on Thursday, that Mr. Brandsaeter is only available to continue his testimony on the 4th and 5th of April; is it correct that he's not available on the 6th of April?
4036. **MR. CROWTHER:** Yes, that's my understanding, Madam Chair.
4037. **THE CHAIRPERSON:** Mr. Brandsaeter, I'll just check with you directly?

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

4038. **MR. AUDUN BRANDSAETER:** At least it will be very limited. There may be some open slots but it will be quite difficult. But if we go verify that on the Friday, the 5th, then I will have at least more detailed information on how the situation will be on the Saturday.
4039. **THE CHAIRPERSON:** Thank you very much.
4040. In light of that information, it may be necessary that the Panel will need to ask the intervenors who are left to question this witness panel -- from our records it's the Gitxaala Nation, Douglas Channel Watch, Heiltsuk Tribal Council, United Fisherman and Allied Workers' Union and the Haisla Nation, as well as, of course, the counsel to the Panel and the Panel -- to limit their questions initially when we return to just those for Mr. Brandsaeter so that we are able to make sure that we can have all the questions asked of Mr. Brandsaeter while he's available on the 4th and 5th of April.
4041. If that's the case, if that's where we need to go, then once all of the questions have been asked of Mr. Brandsaeter, than the intervenors would continue with the remainder of their questions in the same order of appearances that the intervenors have agreed to and announced earlier in this week.
4042. So we won't take that step at this point, we'll continue to monitor the situation as we move forward and provide direction as necessary but we just wanted to make everybody aware of that at this point.
4043. And also, Mr. Crowther on -- as far as Mr. Hansen, just to make sure that we've got everything on the record and that it's clear, the Panel would ask you -- Northern Gateway counsel to place a letter on the record by noon Mountain Standard Time on Tuesday, the 2nd of April, in regards to Mr. Hansen and whether he will be present in Prince Rupert on the 4th of April or available via WebEx. Just so we're clear what's going forward and that all parties know.
4044. **MR. CROWTHER:** We'll do so. Thank you, Madam Chair.
4045. **THE CHAIRPERSON:** Thank you very much.
4046. And we did so well this morning with an early start that we thought we'd try it again. So on Thursday, April 4th, we'll sit again at eight in the morning and the way the time estimates look, it would appear that we'll likely sit

**Enbridge Northern Gateway Panel 5 - Prince Rupert
Examination by Mr. Robinson**

at eight each morning Thursday, Friday and Saturday.

4047. So with that, we'll finish for today. Thank you for another session of great discussion and safe travels to everybody who's travelling.

4048. And the Panel will sit again on the 4th of April at eight o'clock in the morning.

4049. Good-bye.

--- Upon adjourning at 3:46 p.m./L'audience est ajournée à 15h46