NATIONAL ENERGY BOARD
OFFICE NATIONAL DE L'ÉNERGIE

Hearing Order OH-001-2014
Ordonnance d'audience OH-001-2014

Trans Mountain Pipeline ULC
Trans Mountain Expansion Project

Trans Mountain Pipeline ULC
Projet d'agrandissement du réseau de Trans Mountain

VOLUME 39

Hearing held at
L'audience tenue à

National Energy Board
517 Tenth Avenue SW
Calgary, Alberta

February 5, 2016
Le 5 février 2016

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OH-001-2014

IN THE MATTER OF Trans Mountain Pipeline ULC
Application for the Trans Mountain Expansion Project

HEARING LOCATION/LIEU DE L'AUDIENCE

Hearing held in Calgary, Alberta, Friday, February 5, 2016
Audience tenue à Calgary (Alberta), vendredi, le 5 février 2016

BOARD PANEL/COMITÉ D'AUDIENCE DE L'OFFICE

D. Hamilton	Chairman/Président
P. Davies	Member/Membre
A. Scott	Member/Membre

APPEARANCES/COMPARUTIONS

Applicant/Demandeur
Trans Mountain Pipeline ULC
- Ms. Terri-Lee Oleniuk
- Ms. Lesley Matthews

Intervenors/Intervenants
City of Vancouver
- Ms. Susan Horne
- Mr. John Hunter

Alberta Federation of Labour
- Mr. Gil McGowan
- Ms. Leanne Chahley

Edward Farquhar
- Mr. Edward Farquhar

National Energy Board/Office national de l'énergie
- Ms. Nicole Godbout
- Mr. Asad Chaudhary

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No.	Description	Paragraph No./No. de paragraphe

--- Upon commencing at 9:00 a.m./L'audience débute à 9h00

20276. **THE CHAIRMAN:** Good morning and welcome to this morning's -- the last session here in Calgary, which is part of the National Energy Board's hearing regarding Trans Mountain Expansion Project. We will continue to hear intervenor summary oral arguments.

20277. My name is David Hamilton; I am the Chair of the Panel. And with me to my left is Ms. Alison Scott and to my right is Mr. Phil Davies. And together we are the Panel assessing the Trans Mountain Expansion Project application.

20278. Just a brief housekeeping matter before we begin. In the event that we hear the building evacuation tone, the procedure will be to exit the hearing room using the entrance you came in. Once in the hallway, there are two evacuation stairwells. The first is at the end of the hallway to the right of the hearing room entrance doors, and the second stairwell is in the elevator lobby. Once outside the building, we will proceed to Central Memorial Park, which is two blocks south of this building.

20279. As indicated in Procedural Direction 20, the Board has set time limits to hear oral summary argument. The time limit for intervenors is 40 minutes each. This time limit will be strictly enforced and they reflect that intervenors have had the opportunity to file written argument-in-chief prior to oral summary argument.

20280. There's a timer that will indicate a green light for the first 35 minutes, switching to yellow for the last 5 minutes of your speaking time. Finally, when your time is up the red light will come on, and if necessary, the microphones will be switched off, although I will warn you about this before this happens.

20281. Final argument as a whole is an opportunity to express your views and opinions about the project based on the evidence filed by Trans Mountain and intervenors on the hearing record. It is also an opportunity to make recommendations to the Board about matters within the List of Issues or any terms and conditions to which the project should be subject if it is approved.

20282. The Board will not give any weight to new evidence introduced during oral summary argument or any submissions made that do not address the List of Issues.

20283. I think with that we're ready to begin and for the record I would request Trans Mountain's counsel to introduce themselves to our presenters today.

20284. **MS. OLENIUK:** Good morning. My name is Terri-Lee Oleniuk and I am counsel to Trans Mountain. With me is Lesley Matthews and she's the regulatory lead for the expansion project.

20285. **THE CHAIRMAN:** Thank you, Ms. Oleniuk and Ms. Matthews.

20286. This morning we will be hearing from the City of Vancouver, followed by the Alberta Federation of Labour, and concluding with Mr. Edward Farquhar, who will be on the telephone this morning.

20287. Before we go to the City of Vancouver, I'll ask if there are any preliminary matters this morning.

--- (No response/Aucune réponse)

20288. **THE CHAIRMAN:** I see none.

20289. With that then, we're ready to hear Mr. Hunter on behalf of the City of Vancouver. The Board have read all the evidence that has been filed by the City and your written argument and we'd now be pleased to receive your oral summary argument on behalf of the City of Vancouver.

--- FINAL ARGUMENT BY/ARGUMENTATION FINALE PAR THE CITY OF VANCOUVER:

20290. **MR. HUNTER:** Thank you, Mr. Chairman, Members of the Panel.

20291. As you I think know my name is John Hunter; I'm counsel for the City of Vancouver. With me is Susan Horne.

20292. May I say at the outset I'd be quite happy to be interrupted at any point with questions. I would welcome that opportunity. This is, as you pointed out, the last day of the session and so this is the last day -- although not the last time today -- that you will be receiving submissions asking you not to approve this project.

20293. You have heard all the municipalities in the vicinity of the terminal; Surrey, Burnaby, North Vancouver, West Vancouver, Metro Vancouver, Langley, Points East and now the City of Vancouver speak in opposition to this proposal.

20294. You've also heard all the First Nations in the vicinity of the Terminal; the Musqueam, the Squamish, Tsleil-Waututh express their opposition to the pipeline.

20295. Despite the economic advantages that might flow for communities near the end of the pipeline, all the local governments -- municipal, First Nations, even the Province of British Columbia -- oppose this pipeline being built based on the proposal before the Panel.

20296. Now, I will endeavour not to be repetitive this morning, but I do want to address the questions that must arise from this unanimity of viewpoint. Why is there such opposition and what weight should you give to it? That will be the focus of my submissions this morning.

20297. I do not intend to repeat the concerns raised previously by the City of Vancouver about the limitations of the hearing process that you have chosen, except to note that without the benefit of broad public involvement or the proving ground of cross-examination, it becomes incumbent on you to treat Trans Mountain's application with greater skepticism and apply the precautionary approach more broadly than you would in a less constrained process.

20298. Now, in terms of weighing the community concerns, the traditional approach the Board has taken to this argument is to emphasize the national nature of its mandate so long as it's satisfied that all of the available options have been assessed in a satisfactory fashion. I say that in the case before you Trans Mountain has done virtually nothing to satisfy you, that all available options have been considered. And I am of course concerned with the endpoint of the pipeline at the terminal in Burnaby at Burrard Inlet.

20299. Trans Mountain seems simply to have assumed that since it had an existing pipeline that brought oil to Burrard Inlet, the new pipeline should also bring oil to Burrard Inlet even though the existing pipeline was never the subject of environmental assessment.

20300. Trans Mountain's attitude to the legitimate concerns of all of the affected communities at the terminal end is summed up in the following statement

from its written argument:

> *"Further, the Board recently acknowledged that 'various decisions of the courts have established that a specific individual's or locale's interest is to be weighed against the greater public interest, and if something is in the greater public interest, the specific interests must give way.'"*

20301. One source for this reference can be taken from the dissenting judgement in the Board's recent decision concerning the North Montney Mainline. But it's noteworthy that this dissenting judgement goes on to say the following:

> *"However, this statement assumes that there is sufficient investigation of the various options to accomplish the objective, and that this evidence is put before the decision-maker to consider when looking at options to fulfill the objective."*

20302. The majority said this:

> *"Applicants are required to justify their projects to the Board, and to demonstrate that, taking into consideration all technically and economically viable alternatives available, the proposed project is the most appropriate option to meet the needs that would be satisfied by the project while serving the public interest. The Board's regard for the public interest refers to a balance of economic, environmental and social considerations."*

20303. But I say there's no satisfactory evidence that Trans Mountain has taken into consideration all technically and economically viable alternatives. Rather, as the Township of Langley pointed out last week:

> *"Trans Mountain has chosen to pursue approval for the Trans Mountain Expansion Project through the most densely populated corridor it could have chosen, between Alberta and the Pacific Ocean."*

20304. Why have they done that? Because they have an existing pipeline to

the Westridge Terminal and twinning it is the cheapest alternative for them. But the existing pipeline was never the subject of the kind of searching examination that pipeline proposals now require.

20305. The risk of an oil spill in the Burrard Inlet, which is the primary concern of so many of the communities at the end of this line, is an avoidable risk. But Trans Mountain has made no serious effort to avoid it.

20306. Trans Mountain repeated its dismissive approach to the concerns of the municipal and First Nations governments in its oral argument stating that:

> *"Public interest is not defined or determined by loud voices, by politics, by special interests, by the company, or by individuals."*

20307. And then a little later on they said: …

> *"So regardless of the clamour, the authorities are clear that a specific individual's or locale's interest must be weighed against the greater public interest. And if a project is in the greater public interest, the specific interests must give way."*

20308. Again, the principle without the qualification.

20309. Now, are the concerns expressed by affected municipal governments and local First Nations to be dismissed as simply "loud voices and special interests"?

20310. On June 9th, 2015, City of Vancouver counsel confirmed its opposition to the Trans Mountain pipeline proposal following consideration of the expert evidence because of the extreme risks to the people, businesses and environment of Vancouver. The City of Vancouver is the most densely populated urban marine centre in Canada with 630,000 residents and 70,000 businesses, and Metro Vancouver contributes more than $40 billion per year to the Canadian economy.

20311. Vancouver is also the third most densely populated city in North America after New York and San Francisco. Twenty-five thousand (25,000) of Vancouver's residents live within 300 metres of the Burrard Inlet and English Bay shorelines.

20312. These residents share the downtown core with close to 40,000 businesses, so that the daytime population of downtown is 223,000 people. That's a quarter of a million people on the peninsula between Burrard Inlet and English Bay alone. It does not include the people across the bay in the False Creek, Kitsilano and West Point Grey neighbourhoods or the large population that lives east of the downtown core, extending all the way east to the Burnaby boundary.

20313. A spill anywhere in Burrard Inlet has the potential to impact all of these near-shore communities and the residents, tourists and businesses that use the waterfront beaches and parks. Vancouver has almost 70 kilometres of waterfront, 18 kilometres of beaches and a 22-kilometre long seawall that extends around Stanley Park, a designated historic site of Canada.

20314. To give you some sense of the importance of the city's waterfront to its residents and to tourists, many of whom are Canadians visiting Vancouver from all across the country, there are about 5.5 million visitors to Vancouver's seawall annually.

20315. Vancouver also has significant economic activity and residential development along the Fraser River, an area that would be impacted by a pipeline spill that flows into the Fraser River from any one of the 80 water crossings that the new pipeline would make within the lower Fraser River watershed or from a rupture along the many kilometres of pipeline running adjacent to the river.

20316. East Fraserlands on the Fraser River is a 130 acre development that will house 12,500 people and includes a K-7 elementary school, four child care facilities, a high school and a community centre, and that's just Vancouver.

20317. You've heard from Metro Vancouver and numerous other municipalities and First Nations who would be impacted by a pipeline, terminal or a tanker spill, and all of whom oppose the project, as does the Province of British Columbia.

20318. This is not a local or special interest, nor does it represent simply a clamour of loud voices. The City of Vancouver has serious interests at stake in this project.

20319. Now, the original source of the comment that if a project is in the greater public interest, the specific interest must give way, appears to be this

Board's Sumas Energy 2 decision, where the Board went on to say, and I quote, because there's always a however:

> *"However, in this situation, where the benefits of the proposed IPL and associated facilities are not substantially in the greater Canadian public interest, the specific locale's interest has more weight than would otherwise be the case. Overwhelming community opposition to the IPL and Power Plant, while not determinative, is not irrelevant. This is particularly so in this proceeding where there is an absence of support for the IPL and power plant from industry, commercial interests, selected officials, governments, et cetera; no compelling evidence of specific benefits of the IPL and Power Plant to the Canadian public interests generally, and*" [-- and I put some emphasis on this --] *"where the burdens of the IPL and Power Plant would be borne almost exclusively by these local and regional communities."*

20320. In affirming this decision, the Federal Court of Appeal pointed out that,

> *"By definition, the term 'public interest' includes the interests of all the affected members of the public."*

20321. Now, I will address the question of need in a moment, but for purposes of assessing the weight to be placed on the opposition of the surrounding municipal and First Nations communities, I note that the benefits of this project have largely been defined as economic benefits. It cannot be convincingly argued that this project is, *"Substantially in the greater Canadian public interest."*

20322. And furthermore, that Trans Mountain's dismissive approach to the legitimate concerns of the affected municipalities and First Nations must now be evaluated in the context of the interim principles to be applied to the assessment of pipeline proposals announced by the Federal Government last week.

20323. One of the five principles to be applied to this proposal assessment is that, *"The views of the public and affected communities will be sought and considered."*

20324. Now, how should you be weighing these concerns against the

economic benefits said to be produced by the project? Panel member, Ms. Scott, asked counsel for North Shore NOPE a couple of weeks ago whether -- or last week -- whether there's an example of a "superordinate national interest" that justified a project in this country now.

20325. Well, the original Trans Mountain pipeline is arguably one example, although it was approved at a time when there was no environmental impact assessments and the pipeline would not have met today's engineering or safety standards.

20326. In contrast to the new pipeline that is the subject of the Board's review today, the original Trans Mountain pipeline had full approval of the Province of British Columbia, which was acquiring most of its oil from tankers shipping foreign oil from California.

20327. The original Trans Mountain pipeline was considered to be a direct benefit to British Columbia and to Canada's national interest, as it would result in the supply of cheap, accessible Canadian oil to British Columbia refineries, and it would also serve as a strategic defence purpose in the event of war with the Soviet Union.

20328. So the original Trans Mountain pipeline had a broad public interest purpose of allowing us to substitute Canadian oil for foreign oil. This project doesn't have that purpose and doesn’t have any broad Canadian public interest purpose, in my submission.

20329. The times have changed since the original pipeline was built. None of the interests that have been mentioned are served by the new pipeline. Further, an environmental impact assessment is now a key component of the project review, and in this case, the evidence clearly demonstrates that the adverse impacts of the proposed pipeline are significant.

20330. Now, while a number of concerns have been expressed by local municipalities and affected First Nations, the most serious has been the increase in the risk of an oil spill in Burrard Inlet with the enormous consequences such a spill would have, particularly for the City of Vancouver and its citizens.

20331. Trans Mountain recognizes that increased traffic -- tanker traffic is the biggest cause of concern for intervenors, but has approached the issue solely by reference to the risk of a tanker spill occurring and without regard to the

consequences of a spill, if one does occur.

20332. There's ample evidence to support the common sense conclusion that the proper way to conduct a comprehensive risk assessment is to consider both the likelihood of an event occurring and the severity of impact if it does occur. A low probability event that would have catastrophic consequences must be assessed just as a higher probability event that has lesser consequences must be considered. And yet, Trans Mountain's risk assessment excluded low probability, high consequence events from the DNV risk assessment.

20333. But even Trans Mountain's methodology for estimating spill likelihood is flawed, as the Gunton and Broadbent analysis demonstrates. The conclusion of the company that the risks of an oil spill in the region, if the project is approved, will be fundamentally the same as it is today, is consistent with neither the evidence nor common sense. That's the proposition of the company, that the risk of an oil spill in the region, if the project is approved, will be fundamentally the same as it is today.

20334. That can't be right. The project will result in a seven-fold increase of oil tanker traffic in Burrard Inlet. It's apparent that the likelihood of an oil spill will be significantly higher with this increased tanker traffic.

20335. A report commissioned for Transport Canada's tanker safety expert panel came to the common sense conclusion that doubling the volume of oil passing through the Pacific sub-sector 5 would likely increase the spill risk to very high for all zones; near shore, intermediate and deep sea for 10,000 cubic metres spill volume and greater.

20336. Trans Mountain’s own evidence assessed the probability for a terminal spill at 77 percent, for a pipeline spill at 99 percent, and a tanker spill between 16 and 67 percent.

20337. Perhaps the most obvious inadequacy of Trans Mountain’s spill likelihood estimations can be found in their expert’s analysis of the likelihood of a spill in Burrard Inlet. The risk assessment originally made by Trans Mountain’s experts, DNV, failed to consider the prospect of an oil spill in Burrard Inlet between the first and second narrows, segment two.

20338. The hazard report prepared by DNV specified a hazard rating for segment 2 as above average -- above average for collision and grounding; above

average for collision with a fixed object; above average for collision due to congestion of traffic; above average for collision with small craft; and above average for collision with a vessel in anchorage within the harbour. That's the evidence from Trans Mountain's experts.

20339. But since segment 2 is not even included in the list of locations to be considered, no risk assessment was done by DNV.

20340. Now, Trans Mountain took a last minute stab at addressing this omission, filing a brief technical memo from DNV last November, the very latest possible moment for filing evidence in this process. The late filing left no opportunity whatsoever for intervenors or their experts to examine or respond to the technical memo. And it can be given no weight by this Panel.

20341. The risk analysis that DNV did undertake is extremely weak for the reasons identified in the Gunton and Broadbent report. It's also internally inconsistent with DNV identifying segment 2 as presenting an above average risk for a tanker spill yet failing to model and assess the impacts of a spill in segment 2.

20342. Further, as other intervenors including the Province of British Columbia have identified in their submissions, the underlying evidence which is required to support DNV's risk assessment has not been disclosed by Trans Mountain nor has DNV been cross-examined on its risk assessment methodology and conclusions.

20343. The Board's statutorily mandated precautionary approach to the CEAA assessment requires that it prefer the more conservative and, in Vancouver's submission, more reliable evidence of risk set out in the Gunton and Broadbent report.

20344. One of the major concerns of the City of Vancouver is Trans Mountain's failure to come to grips with the consequences of an oil spill should one occur.

20345. I've already described the complex economic, social and environmental conditions and the number of people in businesses in Vancouver alone that are at risk of exposure from a spill in the Burrard Inlet.

20346. The evidence before the Panel demonstrates that the confined setting

of Burrard Inlet can result in oil spreading quickly with potential to affect the entire inlet from Port Moody to the Indian Arm, to the outer harbor and beyond. Winds and tides are major drivers of oil movement in the inlet with strong winds tending to strand oil on the leeward shore while weak winds allow tidal currents to distribute oil over a larger area.

20347. The results of the Genwest model show, in a simulation representing springtime conditions that within the first 24 hours of an oil spill at First Narrows, more than 10 kilometers of Vancouver's shoreline could be oiled, impacting Stanley Park, much of the seawall, beaches, marinas and other waterfront amenities and businesses in Vancouver.

20348. The recent Marathassa oil spill provides additional confirmation of the reliability of the modelling of Genwest showing how quickly and how far even a relatively small amount of oil is likely to spread after a spill.

20349. Now, a diluted bitumen spill in the densely populated Vancouver area would have devastating human health consequences. We don't need to rely solely on modelling to confirm this. We have the real life example of the Enbridge spill of diluted bitumen from -- into Kalamazoo River.

20350. The small town of Marshall, Michigan was directly affected by the spill and 320 people reporting exposure symptoms, a significant number given that there were only 61 houses in the spill area. The residents evacuated but human health impacts were widespread despite these measure; and the recovery efforts still have not cleaned up all of the spilled oil.

20351. In Vancouver, depending on the direction of the wind and the location of the spill, evacuation would be difficult, if not impossible. There are too many people who live and work close to the water. These people would be at risk of exposure to the toxins identified in the Levelton Report with severe efforts -- or effects including neurological damage that could impair the ability to take protective action.

20352. The second factor that is unique to diluted bitumen, and which again Trans Mountain ignored, is that diluted bitumen will submerge and sink, and it will do so quickly. Once submerged, there is no spill response technology currently available to recover the oil.

20353. Furthermore, in the case of a spill in Burrard Inlet, diluted bitumen that

does submerge will quickly spread to Vancouver's shoreline and will be very difficult to remove. Dr. Short's evidence is that it could remain there for decades.

20354. The City of Vancouver's written argument addresses many of the other gaps in Trans Mountain's application and the unrealistic assumptions used in the Arachne reef scenario, all of which lead to the conclusion that Trans Mountain's evidence of oil spill response and recovery should be rejected by the Board.

20355. Now, Trans Mountain is the responsible party in the case of a pipeline spill. Its own modelling confirms that diluted bitumen released from a pipeline rupture at the Port Mann Bridge flows from the river to the Salish Sea and will also impact Vancouver's coastal shorelines; yet it has failed to do any of the critical work that would be required to assess the coastal shorelines that its own modelling confirms will be impacted by a spill into the Fraser River.

20356. Not only has Trans Mountain failed to provide any impact assessment of this spread of oil to Vancouver's shoreline, it's also failed to provide any evidence on which the Board could assess Trans Mountain's capacity or the capacity of its contractor to respond concurrently to all three spill conditions and environments -- river, marine-based and coastal shorelines -- over such and extensive geographic area.

20357. The only evidence before the Panel of socio-economic impacts of the oil spill on the city is the evidence provided by the City of Vancouver. And this evidence presents a bleak picture.

20358. The costs that would be incurred if an oil spill took place would be extremely high in environmental terms, in human health terms, in economic terms, and in the reputational impact on the City of Vancouver, at a minimum. These costs would be borne, at least in the first instance, by the City of Vancouver and its citizens.

20359. I read you an excerpt from this Board's decision in Sumas 2 Energy where a proposed power plant was rejected by the Board largely on the basis of opposition from the affected communities.

20360. One of the factors the Board took into account in putting greater weight on this opposition was where the burdens of the project would be borne almost exclusively by local and regional communities. This has direct application to the project at issue here.

20361. The existing response regime, the absence of a suitable compensation scheme and Trans Mountain's response proposals are inadequate to deal with the severe consequences of an oil spill should they occur.

20362. Trans Mountain says that isn't likely but the company had the opportunity to demonstrate their confidence in that conclusion by proposing a risk transfer mechanism so that the real risk of the impact of an oil spill would be borne by the project Proponent instead of the citizens of Vancouver and the surrounding communities.

20363. The evidence is that the most efficient means of allocating the risk to those who would benefit from this project would be by the purchase of a catastrophe bond. A catastrophe bond, particularly well-named for this project, would transfer some of the financial risk of the oil spill to sophisticated financial investors.

20364. The rate of return required by the investors is a function of the risk of the oil spill occurring. If the risk of a catastrophic oil spill occurring were really as small as Trans Mountain asserts, the company should have had no difficulty in purchasing one and at least assuming the financial risk of a spill.

20365. But of course a catastrophe bond has that name for a reason. The evidence is that such a mechanism would be expensive and difficult to arrange. Far easier is to impose the risk, not just financial but environmental and reputational, on the City of Vancouver and surrounding localities and First Nations.

20366. A failure of Trans Mountain to assume any of the responsibilities of such a marine spill demonstrates how unjustifiable it would be to impose all the risks on Vancouver without any return to Vancouver for accepting that risk.

20367. The other steps Trans Mountain might have taken in this application include oil spill contingency planning of the type you heard explained by the Washington State Department of Ecology earlier this week. The Department of Ecology suggested a number of conditions that might be imposed on Trans Mountain.

20368. But it's our submission that conditions for proper contingency planning and financial assurance are not enough. It should be part of the

application so that they can be tested.

20369. It's incumbent on Trans Mountain to explain in its application how the risks can be mitigated, and the financial consequences borne by those benefiting from the project. This has not been done. The consequence is that many, the many risks that have been identified are borne by local communities, including the City of Vancouver.

20370. Now, the need for such a pipeline in this location would have to be very significant to outweigh the risks identified in the evidence. And I say Trans Mountain's evidence on need does not meet this test.

20371. Trans Mountain's case for the need for this pipeline rests on assumptions that are not only unsubstantiated, but ignore the very great uncertainties that are facing the oil industry at this time.

20372. While the weaknesses in Trans Mountain's assumptions are reviewed at length in the City of Vancouver's written argument, I want to emphasize two in particular this morning. The failure to consider the likelihood of policy changes, both in Canada and in the markets identified by Trans Mountain for their product, and the optimistic price scenarios on which this application is based.

20373. This uncertainty was highlighted in the recent comments of the Chair and CEO of the National Energy Board, Peter Watson, in his introduction to the NEB 2016 Energy Futures Report released just last week.

20374. Mr. Watson made the following comments about the high degree of uncertainty about Canada's energy future. And I quote:

> *"To use 'uncertain' to characterize the past 18 months in Canadian energy would be an understatement. I doubt there is a single market observer who could have foreseen the dramatic fall in the global price of crude oil, one of Canada's largest exports, from US$110 per barrel in mid-2014 to less than US$40 per barrel by end of December 2015 and then to less than US$30 per barrel in January 2016. Among many other factors contributing to the lack of clarity on Canada's energy future were the unprecedented market volatility, the rapid deployment of advanced technologies for renewable and fossil fuel energy production, a historic climate agreement in Paris,*

> *the denial of the Keystone XL project in the US, the lifting of the US oil export ban, as well as the lifting of sanctions on Iran."*

20375. And a little later in the introduction he continues:

> *"In recent months the federal and many provincial governments in Canada have made announcements about new climate policy initiatives and the momentum is increasing, especially following the agreement at the 21st Conference of the Parties in Paris. Many of these policies are quite bold and put Canada in the position of having some of the most advanced climate change policies in the world. EF 2016 does not include these recent announcements, as it only reports on policies and programs that are law, or near law at the time of analysis, but it does highlight their significance. The insights from the report suggest to me that these policy developments will be critical factors in Canada's energy and environmental future, and the possible addition of climate policy developments beyond those just announced will represent a considerable uncertainty for long-term energy projections."*

20376. Now, the foundation of Trans Mountain's case for need is the Muse Stancil Report. This report consistently takes the most favourable assumptions available and ignores factors that undercut Trans Mountain's position.

20377. The City of Vancouver's written argument addresses the frailties in the Muse Stancil Report extensively, and I commend it to you. In the limited time we have today, I do not propose to review those in depth but rather to direct your attention to evidence that may be more useful to you.

20378. The City of Vancouver commissioned a report from Dr. Kathryn Harrison entitled "Review of Destination Country Policies with Potential to Impact Demand for Canadian Oil Exports", in order to provide a detailed review of existing or planned government policies and regulations in jurisdictions other than Canada to limit or reduce GHG emissions.

20379. Dr. Harrison concludes that these policies will result in a substantial reduction in oil consumption over the lifetime of the pipeline that has been proposed. Dr. Harrison describes it as -- and I quote:

> *"A virtual certainty that legal requirements and regulatory standards will become more stringent over time."*

20380. And who could disagree with that?

20381. Trans Mountain, in its written argument, spends some time disputing Dr. Harrison's critique of Muse Stancil but does not even attempt to address Dr. Harrison's analysis of the likely effects of policy changes on demand for Trans Mountain's product.

20382. The findings in the Harrison report are consistent with the work of the leading economists that have researched the impacts of the global commitment to limit global warning to two degrees Celsius, on demand for oil, and more specifically unconventional oil products such as oil sands bitumen.

20383. One such analysis concludes that 74 percent of Canadian oil reserves will remain unused as a result of global regulatory measures to limit global warming. Even without significant policy changes, Dr. Jaccard's economic analysis, which is supported by the actual emissions reducing measures identified in the Harrison report, demonstrates that oil sands bitumen, one of the most expensive oil products to produce, will be uncompetitive long before 2040.

20384. The second though related weakness in Trans Mountain's assumptions arises from the uncertainty about whether oil prices will support continued production of the high cost bitumen that is intended to flow through this pipeline.

20385. The Muse Stancil Report relies on an outdated 2014 forecast from IEA that estimates prices will remain above $100 per barrel throughout the forecast period. And it's perhaps an indication of how fast things are moving right now that a 2014 forecast from the IEA could be outdated so quickly.

20386. The more recent 2015 report from the IEA provides two forecast scenarios, one that assumes oil prices will remain below $80 until 2020 and gradually rise after that, and one that assumes oil prices will remain in the $50-60 range until 2020 and gradually rise to $85 by 2048. Neither of them contemplated a $30 barrel price.

20387. But under the low oil price scenario of $50-60 range until 2020, the IEA concludes that growth in Canadian oil sands production will be cut by more

than half. The IEA forecasts a 60 percent reduction between 2014 and 2040.

20388. Peter Watson commented on the unforeseen drop in prices from $110 U.S. per barrel in mid-2014 to less than $30 a barrel last week and this week.

20389. Trans Mountain has failed to provide any analysis of the need for or the economic feasibility of this pipeline in the event that prices remain well below $100 per barrel for the next 20 years.

20390. In the absence of this evidence, the Board cannot give any weight to the analysis of Muse Stancil on which the case for need is based.

20391. The third weakness in Trans Mountain's set of assumptions is the failure of the company to give adequate or any consideration to the likelihood that Canada's federal and provincial governments will take regulatory action to reduce GHG emissions in order to meet Canada's international commitments. This action alone has the potential to result in production levels below that forecast by Trans Mountain.

20392. The Auditor General of Canada's Commissioner of the Environment and Sustainable Development released a report in 2012 which concluded that Canada is on a path to be 74 percent above its 2005 level of GHG emissions instead of the targeted 17 percent below.

20393. **THE CHAIRMAN:** I think you have noticed, Mr. Hunter, you have five minutes remaining.

20394. **MR. HUNTER:** Yes, thank you.

20395. Let me -- I will reference simply some of the evidence on the GHG emissions that the City of Vancouver has provided with you and move into a more conclusory position.

20396. Since this evidence was filed, Canada has agreed to new objectives at the Paris Climate Conference that requires even more GHG emission reductions in order to achieve international objectives, which are now intended to limit the increase in global average temperature to 1.5 degrees Celsius.

20397. All of the indications are that Canadian governments relax their regulatory changes to limit GHG emissions in the very near future. The City of

Vancouver is already taking steps towards reduced fossil fuel consumption with the introduction last year of a strategy for 100 percent renewable energy use by 2015.

20398. These new climate policy initiatives, which Peter Watson has described as "critical factors in Canada's energy and environmental future," have not been taken into account in Trans Mountain's needs analysis. This is a serious omission.

20399. This discussion of operation and construction-related GHG emissions also does not take into account the increased GHG emissions from the upstream production of the volume of oil sands crude that would be transported on the pipeline or the downstream use of the oil.

20400. Now, the Panel has ruled against Vancouver's application for consideration of the upstream production activities and downstream uses in the List of Issues. However, there can be no dispute that if these increased GHG emissions were taken into account, the Board's public interest analysis, considering as it must the detrimental effects of the proposed project, would weigh even more heavily in favour of rejection of the proposed pipeline.

20401. On that subject we note that the government's interim principles announced last week included the statement that in relation to the Trans Mountain proposal:

> *"Direct and upstream greenhouse gas emissions linked to the projects under review will be assessed."*

20402. The position of Vancouver has consistently been that the Panel should be considering the increased GHG emissions from upstream production of the volume of oil sands crude that would be transported along this pipeline. It appears that will now be done in some fashion.

20403. Now, other intervenors -- and you will hear from one later on this morning -- have pointed out additional deficiencies in the Applicant's position on the need for this project. But simply taking into account the uncertainties of regulatory change and the overly optimistic scenarios on oil prices, it seems clear, in my submission, that the case for the need for this project at this time has not been made out.

20404. This is a project that meets neither the public interest standards of the NEB Act nor the environmental tests of CEAA. A balance of the economic, environmental, and social considerations leads to the conclusion that the case has not been made for the construction of this pipeline to the terminal in Burnaby and the resulting seven-fold increase in tanker traffic in Burrard Inlet.

20405. The strong opposition of all the affected municipal and First Nations governments surrounding Burrard Inlet demonstrates the weakness of this proposal on public interest grounds.

20406. Given the high degree of uncertainty around future Canadian oil production growth, it would be wrong for the Board to accept on the one hand unreasonably optimistic economic benefits evidence filed by Trans Mountain that do not take into account this high degree of uncertainty, and to reject on the other hand the evidence of significant risk and extreme impacts of an oil spill in Burrard Inlet on the basis of uncertainty around when and where an oil spill will happen.

20407. There's a strong risk of significantly adverse environmental effects of this project that outweigh any benefits. This additional regulatory consideration of the CEAA Standards cannot be met by Trans Mountain. Trans Mountain has not assessed these risks adequately and has not presented a proposal to the Board that addresses them in any convincing way.

20408. The Board must recommend that a Certificate of Public Convenience and Necessity should not be issued for this pipeline project.

20409. These are my submissions.

--- (A short pause/Courte pause)

20410. **THE CHAIRMAN:** Thank you, Mr. Hunter.

20411. The Panel will take a 15 minute recess to consider possible questions to you. We will return at 10:00.

--- Upon recessing at 9:44 a.m./L'audience est suspendue à 9h44
--- Upon resuming at 10:05 a.m./L'audience est reprise à 10h05

20412. **THE CHAIRMAN:** Thank you, Mr. Hunter. The Board understands your submissions but we have one question for you if you're prepared to entertain

it.

20413. Ms. Scott, please.

20414. **MEMBER SCOTT:** You referenced in your argument the technical memo from DNV and I think you said that it was filed in November. And frankly, we've been looking and we can't locate anything in November. So I wonder if you could give us a specific reference to the exhibit number or the filing number?

20415. **MR. HUNTER:** I may have to get you that and send you a note if that's acceptable. I don't have it at hand. I'm afraid I just had a note of November and perhaps that was a mistaken note.

20416. **MEMBER SCOTT:** Okay, that's fine. Thank you.

--- (A short pause/Courte pause)

20417. **THE CHAIRMAN:** With that, Mr. Hunter, on behalf of the Board we thank you for your submissions today and we can assure you that we will be considering it along with all the other submissions that we have in our evidence today. Thank you.

20418. **MR. HUNTER:** Thank you, Mr. Chairman, Members.

20419. **THE CHAIRMAN:** We'll just take a very short -- we won't leave the hearing room. And then we'll now hear from the -- I'd ask the Alberta Federation of Labour to come forward.

--- (A short pause/Courte pause)

20420. **THE CHAIRMAN:** Thank you and the Board are prepared to hear the oral summary argument from the Alberta Federation of Labour. We have read your submissions and we're now pleased to hear your oral argument.

--- FINAL ARGUMENT BY/ARGUMENTATION FINALE PAR THE ALBERTA FEDERATION OF LABOUR:

20421. **MS. CHAHLEY:** Thank you, sir and Members of the Board.

20422. My name is Leanne Chahley and I'm the lawyer for the Alberta Federation of Labour and I have the honour and privilege of being here to speak on their behalf.

20423. Mr. Gil McGowan is with me here and is in the -- in the gallery but he has just been notified that he has to be in Edmonton to meet with people from the premier's office at 2:00. So unfortunately, he has to catch a taxi in five minutes.

20424. So he, with the greatest respect to the Board, would have liked to have been here, and I will try to field any questions that you may have had for Mr. McGowan. And we apologize for that change in schedule.

20425. Mr. McGowan is the President of the Federation of Labour and has served in that capacity for a number of years.

20426. I also wanted to mention that we are honoured to be invited to participate today here on Treaty 7 land and we -- I enjoyed the most beautiful sunrise driving in from the south where I was staying with my family this morning. It is a beautiful, beautiful spot.

20427. So let me start -- I don't think I will use all my time. But I've said that before and it hasn't been true so I'm not giving you any promises.

20428. I wanted to just note for you the Alberta Federation of Labour is an organization of over 27 local trade unions in Alberta and therefore we speak for -- collectively for approximately 170,000 working Albertans.

20429. The AFL, Mr. McGowan and I and other staff members from the AFL have been appearing in front of the National Energy Board regarding bitumen export pipelines since the first Keystone pipeline. So we have been here for over 10 years in different hearings.

20430. We have participated in each of the Keystone applications. We've participated in Southern Lights, Alberta Clipper and Northern Gateway. We were able to attend in Terrace, B.C. to make our final argument in Northern Gateway. And I even had the opportunity to go and visit Kitimat in person and see the beautiful territory and beautiful city and the beautiful port there.

20431. So -- and I've been other places with the Board. I've been to Oyen;

I've made presentations in Edmonton; it's been an experience.

20432. And so we're happy to be here today in Calgary.

20433. While the AFL filed evidence in other applications, in this application we did not file our own evidence. Instead, we chose to rely on the evidence and we -- again, we reiterate, we rely on the evidence on the evidence of many of the intervenors, in particular, that filed by UNIFOR, which is a trade union that represents a large number of the work -- actual workers in the oil patch across Canada.

20434. Their evidence, just for your reference, is Exhibit C362-4-2. And that reference is also in our written argument for you.

20435. In my oral presentation -- you have our written argument. And thank you so much for having taken the time read it and to be aware of it in advance of today. I'm going to focus on three points in this summary argument for you.

20436. I want to talk about the best interests of Canadians, which we feel, of course, is your main focus here today and throughout the months following as you deliberate over the volumes of material that has been filed before you.

20437. We want to talk about our submission that this project does not create significant economic benefit. And we want to just briefly touch on some of our concerns with the hearing process that the Board has adopted for this particular pipeline application.

20438. So starting first with the best interests of Canadians -- and I was very honoured and pleased to be able to listen to the submission by the City of Vancouver this morning. I have also listened -- not listened -- listened on the internet and read the transcripts of most of the other oral summary arguments that have been before you in the last few weeks and I would commend the submissions to you from the intervenors opposing the pipelines particularly.

20439. We would say to you that Trans Mountain's application is, in essence, that since the shippers, oil producers in Alberta want a pipeline, we should build it for them.

20440. Many of those oil producers are not even fully or even partially Canadian-owned companies. So we want to start with saying, "Where is the

public interest in?"

20441. And I know the comment came up about the subordinate, overall public interest; and I might touch on that just very briefly as I go, too.

20442. The AFL submits that the Board has before it a massive amount of evidence and submissions of why ordinary Canadians don't want this pipeline. You've heard the concerns of the Indigenous peoples. You've heard from municipalities. You've heard from landowners, the Province of B.C., experts, workers and many other individuals who are affected by this pipeline and who are concerned about the impact on their culture, their way of life, their livelihood, the environment, the animals and fish living in the oceans and on the lands, et cetera.

20443. And I would just state for the record that the Alberta Federation of Labour shares those concerns. Fundamentally, most of those concerns arise from a simple thing. They arise from, "What is the product that's going to be in the pipeline?" And that product is raw bitumen blended with a toxic diluent. It's an unprocessed resource from Canada.

20444. What the AFL and UNIFOR, in its evidence, have focused are efforts before the NEB in this matter and in all others, is on presenting to the National Energy Board the concerns of working people of Canada; and that would be the working people today and the working people into the future -- our children, our grandchildren -- and particularly the working people in the oil patch itself.

20445. And the concerns of the worker are basically the same as the concerns of all of those other intervenors. Our concerns arise from the product in the pipeline.

20446. And let me just say -- and it's clear in our submissions -- our written submission -- from the ALF's perspective, what should be in a pipeline, any pipeline leaving the oil patch -- and whether that's in Alberta, or B.C., or in Saskatchewan, or in other provinces -- is gasoline, jet fuel, diesel fuel, not raw, unprocessed bitumen.

20447. So what the AFL and its affiliated unions and all of the members want is jobs. We want permanent, full career jobs -- 30 to 35-year career jobs that are high paying working in Canada's oil patch.

20448. Unfortunately, when we mine and ship raw bitumen out of Canada, it

doesn't create those jobs. What it creates is a few jobs in construction -- an excellent few for a little while; and I'll come to that in a minute -- and then a few jobs tending to the pipeline.

20449. But we all know in this room -- you don't need an expert to tell you, although it's in the materials that you have before you in all of those pages -- that raw bitumen is not very useful to anyone as raw bitumen.

20450. It needs to be upgraded. It needs to be refined into products like diesel fuel, jet fuel, gasoline before it's useful to the population anywhere in the world.

20451. So in this case you have an application for -- and forgive me if I've got the numbers wrong. I think I found them correctly from the materials -- about 590,000 barrels per day of oil -- of raw bitumen to be proposed to be shipped down the Trans Mountain pipeline expansion.

20452. We would like to point out to you that that is a sufficient amount of product to support a huge upgrader and/or refinery to provide feedstock, and perhaps even for more than one.

20453. Remember the shippers have signed those commitments to keep that pipeline full -- the expanded pipeline of 890,000 barrels per day -- 890,000 barrels -- I might have misspoked (sic). And they've signed commitments to keep it 80 percent full for each and every day over the next 15 to 20 years after it's built. That's a lot of barrels going down the pipeline.

20454. And we know that they'll use it because they're going to pay for that space whether or not they use it; so they will make sure that it's used, in my submission.

20455. So we would say that, "Is" -- the question to ask -- "Is it in the best interests of Canadians to ship away the long-term, high-paying career jobs, thousands of them, that would be created to upgrade and refine the raw bitumen because it will have to be upgraded and refined anywhere -- somewhere?" And we would say no. The obvious answer is no.

20456. So let's compare the jobs created by the Trans Mountain pipeline expansion, the project that is before you.

20457. The Conference Board of Canada Report, which was filed by Trans

Mountain and is Exhibit B427-4-3a, talks about jobs. And if you -- and I don't have it to turn up because I know you have reference to it in our submission in the evidence, but I want to talk about it.

20458. At page 13 of their report, chart number 1, they've put together a representation of the jobs that will be created in the construction phase. And as you can see looking at that chart, a huge number of jobs will be created in construction but only for two years.

20459. And so for two years the workers -- construction workers in Alberta and in B.C. will have great employment. And for that, the AFL think it's a great thing. But then they will have no more jobs related to this pipeline. So the impact on them is only two years of employment and then they will have to look for employment elsewhere.

20460. So that's, in our submission, not an enduring benefit to all of Canada. That's a very short-term benefit.

20461. And then looking through the report -- and it was a bit difficult to find, but if you go to page 32 of the Conference Board Report, they don't have a nice chart or table but we see that just over 400 jobs are created in the operation stage of this pipeline. And that's better than the first Keystone one that we were here on when it was only 17 jobs.

20462. Over 300 of those jobs will be in B.C. And what the Conference Board Report states is that those jobs are at pipeline-related facilities, pumping stations and terminals. So there is no ongoing employment beyond those 400 jobs.

20463. I want you to compare that to an expansion in the upgrading and refining sector. Besides the fact that there's thousands of jobs to run those facilities for their entire lifetime, not just the two years to construct them, but also they also create secondary industry, spinoff industry that we've seen come and go in the chemical sector in Alberta, for example. And those are also long-term well-paying jobs. And all of the jobs also create the same direct and indirect economic effects for Canada that we see referenced in the Muse Stancil Report and in the Conference Board Report as well.

20464. So what we don't see, and we ask you to ask yourself, is where is the evidence to explain why Canadians should be shipping this work, these jobs, the

incredible energy sector to refine the raw bitumen. Why should we ship that down the pipeline into other countries who will receive this oil?

20465. I want to move on to the topic of lack of economic benefit. Trans Mountain has presented evidence that this project would add billions to the overall economy in Canada, primarily through taxes, increased profits to the oil producers. There will be those two years of jobs in the construction industry; we acknowledge that. And there will be those 400 or so jobs permanently as well but most of the economic benefit that they speak of comes from the revenues for taxes, the revenues for profits, the extra spending oil producers might spend as they continue to produce oil.

20466. Now we, the AFL, supports the evidence of the intervenors, including the expert reports that have been filed and their submissions who disagree with the proposition that this is an economic benefit.

20467. I start by just making, you know, a few really very basic points. And I was interested in one of the questions, and I'm sorry, I've forgotten which one of you posed it last week or the week before. It was, just looking at basic economics, what about this and this?

20468. And I think we can all look at the knowledge that we've gained from these proceedings and just look at the basic economics as opposed to getting down into the fine nitty-gritty of the details of those expert reports. In part because we don't have the benefit of being able to cross-examine them and get into those fine details in the way that we have in other hearings.

20469. But let me just say to you that any investment of five or more billion dollars in infrastructure in Alberta and BC would create a huge economic improvement, all other things being equal, to the economy of Canada. That's basic economics.

20470. The building of an upgrader and a refinery, we submit, with the same economic benefit, would have -- about the same economic cost -- would have the same economic benefit, certainly in the construction phase. But then we would point out that operating a refinery would also produce a tax revenue to the government. Maybe not as much property tax because it's not spread over so much land as pipeline. As we can see from the map that's up, the pipeline covers a great deal of territory, but it would still create, you know, a significant amount of tax revenue.

20471. The oil producers would be able to sell their oil. And if we made that refinery in Alberta, or B.C., or Saskatchewan, locally, it would be -- you know, they've talked in their evidence about how selling oil in Asia is an advantage because the shipping distance from Canada to Asia is a lot less than the shipping distance from other major producing areas to Asia. So that there's a benefit to coming from Canada in terms of the cost of shipping.

20472. But if they're not shipping out of country there's an even huger benefit. And again, that's just common sense. And to the extent that we already have pipelines in Alberta to move product to the terminal proposed at Edmonton for this one. It's not even, like, new pipelines would have to be built necessarily to deal with that. But if necessary, small pipelines could be built which would be relatively inexpensive. We don't need a complicated analysis to draw those conclusions.

20473. But what I wanted to point out to you -- two things at this point -- is number one, if we are shipping the oil only to a refinery and an upgrader then the benefits wouldn't stop. Then there would be the thousands of jobs to work those refineries and upgraders each day, every day for the life of those refineries. All the economic benefits that we see proposed around the construction phase, a similar kind of direct, indirect and additional effects would happen and it would be ongoing for the life of those refineries. For the 30-year career for my friend, for the 30-year career for their child.

20474. The other thing I want to point out to you is that as we have heard, and as the City of Vancouver counsel was just referencing you to, things are changing. And Trans Mountain made that point in their submission as well. The world is changing and the oil business is, you know, different now. The price is lower, we have -- we can't look to the Americans as a stable customer anymore. We need to look at other things.

20475. And what we would say to you is, again simply, as the world oil prices dropped, as we're getting new greenhouse gas rules across the world and in Canada, the demand for bitumen, we submit to you, is becoming lower and lower. And we also have another source of oil, we have fracking oil competing with bitumen. And as that demand and price become lower and lower, we're concerned that it won't justify export in the future and we think that's a concern you should be concerned about.

20476. But what we want to say is, the simple fact is if we didn't approve this pipeline and instead required -- forced in essence or encouraged the market to upgrade and refine in Alberta, or B.C., or Saskatchewan, Canada instead, that refinery would then be in this world vision receiving cheap feedstock which would only then allow them to increase their revenues in terms of their ability to turn that product into useful end products to Canadians and to export them.

20477. So we point out the fact in addition to not taking into account any of this in their analysis, any of the let's look at what we would do otherwise, we also wanted to point out that Trans Mountain left other costs out of their analysis of this project.

20478. And, you know, besides the huge environmental, social, cultural and other difficult to quantify costs which many of the intervenors have gone to great lengths to try to provide you with that evidence and those analyses, I couldn't -- we couldn't find anywhere where Trans Mountain even quantified and included the cost of the losses to the railway industry.

20479. I read their submissions, I read their evidence. I found that they were adamant that this pipeline would mean that 500,000 barrels per day of bitumen would leave the railways and would go in the pipeline. And they talk about why that's a benefit to the oil producers because, in their view, the pipeline is a cheaper form of transportation. And I'm not going to take issue with that proposition at this point; perhaps it is cheaper.

20480. I would, as an aside, point out that the railway industry in Canada -- there's people who work in that every day and it supports many families as well to drive and to move each of those trains.

20481. But leaving that aside, we're taking -- they've been adamant this oil will go from the railway into that pipeline. And they've done -- said that in response to suggestions that no, the oil would stay in the railways so why would the pipeline be needed, and those kinds of arguments.

20482. But what we don't have is any kind of in-depth analysis as to what impact that would have on the economy of Canada that I can find. We know that shipping by rail they say costs more, so we would have every reason to conclude that the impact of that loss of rail revenue would be equal or exceed the benefits of using the pipeline for shipping in terms of the cost.

20483. And really then what we would say is -- and they've said several times, "It's not for you to prefer one industry over the other. It's not for you to tamper with the market. Let the market decide. Don't pick. There shouldn't be winners and losers decided by the Board."

20484. But what Trans Mountain really is asking you to do on this point is to prefer the pipeline industry over the rail industry without even providing you with really a good analysis of what that's going to cost to the Canadian economy with that loss of revenue from rail, what that would cost to the Canadian workers who work on railway. Would there be a loss of jobs there or not? What about the loss of facilities that have been put in place to ship the bitumen already?

20485. So we ask that you rely on the excellent work of Dr. Gunton and others who -- experts that have been provided to you by the other intervenors in terms of those cost issues.

20486. We also ask -- and as we said at length in our -- at greater length in our written argument -- that just because those other costs, the social costs, the environmental costs, the cultural costs are hard to quantify, doesn't mean they should be ignored.

20487. Now, I want to move on to the issue of process, and I'm not going to talk too long about process. If there's a question, though, before that, I am more than happy to entertain them, just to let you know.

20488. **THE CHAIRMAN**: Thank you for the opportunity. Mr. Davies -- and your clock will stop on that. And I recognize that the president has left for his meeting, so I'll just recognize that. He's -- you can't see behind you. Mr. Davies?

20489. **MEMBER DAVIES**: I'm hoping you'll embarrass me and point me to what I forget reading, but on page 11 of your written brief, you make the case that by Trans Mountain building this expansion, it will deny upgraders and refiners in Canada expansion opportunities.

20490. What evidence do we have on the record that those interests are, in fact, going to be adversely affected?

20491. **MS. CHAHLEY**: I don't have a place to point to you where an upgrader or refining company has come and said, "We are going to have to close." But if you look through the reports provided to you by the oil industry such as

CAPP, and if you look through the NEB's own historical reviews of the industry, what you'll see is, over time, the number of refineries and upgraders that have been proposed in Alberta have dropped off. And there's many numbers and reasons why that could happen, but we do have that.

20492. But more importantly is the common sense thing. If you ship 500,000 barrels of oil away, and I want to build my refinery, I don't have that 500,000 barrels a day, because we know that they're signing permanent contracts or 20-year contracts to ship it away. It's not like they can turn on the dime and sell it to me because they've committed to shipping it away. So it's much more of analysis at this stage. We don't -- didn't bring you evidence in this hearing to suggest otherwise.

20493. But I would also say -- and I was coming to that in process -- that we also submit to you that that shouldn't be our obligation. It should be for the proponent of a pipeline like this, faced with that simple basic common sense, to bring you evidence to the contrary, to show you that in fact, you know, there -- it won't impact negatively.

20494. **MEMBER DAVIES**: You're asking the Proponent to consider as part of its analysis and support of its proposition to study alternatives where refining in Canada and to demonstrate that those alternatives are not the best choice?

20495. I would submit that the onus would be for the refiners, whose interests are potentially being harmed, to come and make that case.

20496. But in any event, there's nothing on the record that the Alberta Federation of Labour has filed to support the economic viability of incremental refinery or upgrading in Canada, or is there?

20497. **MS. CHAHLEY**: Just the evidence that UNIFOR has, and it's much broader than what you're asking for.

20498. **MEMBER DAVIES**: Thank you.

20499. **MS. CHAHLEY**: Now, I could say to you -- and I was coming into process here -- that it would have been nice to have had the opportunity to question, for example, Mr. Earnest, who filed the Muse Stancil evidence for Trans Mountain, the last revised evidence on the economics. I've questioned Mr. Earnest in cross-examination several times now and we would have been able to

explore some of those issues, and he has great knowledge on those, but we didn't have that opportunity in this process.

20500. It's very difficult to say to a group of workers, "You should go and get evidence from refiners." I think that we can all understand the difficulty that puts us in, in terms of that, you know.

20501. And the industry is what it is, but I think that having said all that, the AFL would ask you to simply note, if you ship away the raw materials, there's no point in building a refinery because I don't have anything to refine. It's all been shipped away.

20502. And I would bring you back to the point that the bitumen -- raw bitumen landing in China or landing in Korea or landing on the coast in Washington for British Petroleum isn't useful. They, just like BP, are going to put it in an upgrader in a refinery. They're not going to take that raw bitumen and use it for anything. And so we know that is has to be done somewhere.

20503. In terms of process -- and I think I've jumped ahead a little bit -- I would say that, you know, we've been coming here, as I said, for 10 years to different hearings, and we've devoted a great deal of time to trying to bring the concerns of workers. We were very pleased because it was very lonely at the first hearings, although the Proponent was there and us and a few other people.

20504. We're very pleased to see the greater interest that the Canadian public has taken and experts, municipalities and other groups to come and to come to present. The Aboriginal groups have always been at the hearings that I've been to, but they've certainly -- the First Nations have come in greater numbers and with greater evidence to bring to the Board. And we think that's excellent and we see that evolution to this case.

20505. But we are -- and I wanted to say this on the record -- we are dismayed that with the addition of those diversity of voices, with the addition of the experience and evidence that they've gathered from all sorts of experts and individuals, that what has come with that is the taking away of the right to cross-examine those witnesses.

20506. I will point out to you that the Northern Gateway hearing had over 400 intervenors, like this one; a lot of people who might bring evidence who might want to cross-examine, and those hearings were conducted well, respectfully.

They were not inappropriately extended. There wasn't any problem in the Board hearing in receiving cross-examination as requested by the parties. And in fact, the Board staff and its -- all of the Board staff; the technical to the legal to the experts, worked incredibly hard to provide a very professional and easy to use product for that cross-examination.

20507. We don't know why that wouldn't have happened in this hearing. You have even greater diversity of evidence and interest from people who want to come before you.

20508. There is just no way, having been involved in cross-examination before this Board, to compare that process to an IR process where I ask a question and I get back an answer that I don't understand and I have to wait for my next round to ask to clarify that. And then I don't have another round to say the next question. It's no comparison to cross-examination.

20509. And we don't get a chance to have a dialogue back and forth, where for example, Mr. Earnest would say -- and I think it's -- I saw it in some of the materials, in answer to a question to me, that if he could accurately predict the price of oil, he wouldn't have been there answering my questions, he would be on his yacht in the French Riviera. And that's in the transcripts from the Northern Gateway hearing if you're looking for the reference. I don't have the page, though.

20510. And we have to say to you, besides us being concerned that you don't have the benefit of the insights of that, is that we are very troubled. We don't know how you will sift through the evidence and make determinations where it's competing without that benefit, especially with the expert evidence.

20511. We think that you've put -- the Board has put itself in an incredibly difficult position as a result, and we hope that you will comment on that so that the next panel dealing with the next hearing, which may be Energy East or may be another, will have the benefit and the insight and will go back, we hope, to full cross-examination.

20512. We feel that process without it here really makes it very difficult for the panel and for the community, the broader Canadian public, for the workers that I speak for, to feel this process was fair or transparent.

20513. I also talked in my written submission about upstream and downstream

effects and impacts on the lack of evidence on that, and also the concern with the burden, and I think we've now covered that in the question from Mr. Davies, thank you very much, to some degree.

20514. And those process issues as well -- I'm not going to repeat those here. I see that my time is -- I have some left, but I'm not -- I didn't plan to repeat those here this morning.

20515. I would say that it's important that you think about what you're doing on that -- on the onus issue, not just in terms of, well, who should legally bear the burden, but your mandate is to look to the best interests of Canadians. It's not to prefer one lawyer's submissions over another. It's to provide a fair, transparent hearing of the evidence, of real evidence, to give the opportunity for people to come before you and tell what's going on to get that evidence.

20516. If you put burdens on people who don't have access to that evidence and say, "Well, the workers didn't bring the evidence from the refineries who didn't get to be built, so therefore there's no refineries that got to be built." That's asking us to bring evidence that we have no access to.

20517. But the pipeline company, Trans Mountain has access to that. They have access to the industry cap, who appeared before you. They have access to that information. They have access to those players.

20518. So we ask you to consider that your mandate is not about onuses, it's about hearing what's best for Canadians.

20519. So I'm going to conclude at this point and say just a couple of concluding remarks. Number one, we ask that you recommend against this pipeline expansion project. We do point out and accept that though this submission is made to you by many people, that the original Trans Mountain pipeline when built in the fifties never was subject to a process like this.

20520. So it's not the same to say, well, it's just an expansion of a decision we've already made in a fair and full consideration of the public interest because that just wasn't how it was done then.

20521. We would submit to you that the overall Canadian public interest does not support this application to go ahead, neither on the economics, on the concern about the impact on the oil patch and refining in Canada, and on any of the other

issues that have been raised by the other intervenors in terms of the Indigenous community, or the environment, or the impacts on the urban centres.

20522. I also would say that we have not made submissions on the conditions. And we appreciate your obligation, whether or not you recommend this pipeline, to make recommendations on conditions. We ask that you consider and carefully take into account the submissions of the experts from the intervenors before you on those conditions. Those conditions, as you know, are vital to the decision that will be made to the government, and in the end as to what will happen with this pipeline.

20523. We ask that you take into account the interest of all Canadians as you do that. And we will leave that and not add anything to that.

20524. And finally, I wanted to say thank you to this Panel for hearing us and giving us the opportunity to participate.

20525. I'd like to say, which I have said in every submission I have made before this Board, that the staff of the National Energy Board are of the highest level of professionalism. I deal with many boards in my practice, and I have to say that I'm always so impressed with the courtesy, the assistance, the level of resources and help that I receive from the staff of this Board every time I come here. And I'd like to again acknowledge that they continue to extend that to us. I've watched them extend it to other intervenors in this process.

20526. And I'd also say that the technology that you've put in place makes it way easier for all Canadians to participate, and I'd like to acknowledge that as well.

20527. And so I thank you for that help and courtesy in appearing here.

20528. If you have any more questions, I'm happy to answer them, but otherwise those are my submissions.

20529. **THE CHAIRMAN:** Thank you for your comment.

20530. And I actually thank you and agree with you on the quality and the expertise of our staff. I will not argue with that on that point.

20531. One second, please.

20532. **MS. CHAHLEY:** Thank you.

--- (A short pause/Courte pause)

20533. **THE CHAIRMAN:** The Board have no further questions of Ms. Chahley on behalf of the Alberta Federation of Labour.

20534. We thank you for your submission today. And as you quite correctly point out, we will consider it along with all the other evidence that we have in front of us.

20535. **MS. CHAHLEY:** Thank you very much.

20536. **THE CHAIRMAN:** Thank you.

20537. We'll just take a short five-minute recess until we have Mr. Farquhar, who will be joining us by telephone.

--- Upon recessing at 10:44 a.m./L'audience est suspendue à 10h44
--- Upon resuming at 10:54 a.m./L'audience est reprise à 10h54

20538. **THE CHAIRMAN:** Thank you. Welcome back.

20539. And, Mr. Farquhar, you're joining us from Halifax, Nova Scotia, I understand. And you have an honour of being actually the last presenter from the oral summary argument that the Board will hear. With that, are you prepared to present your oral summary argument?

20540. **MR. FARQUHAR:** Hello. Yes, this is Ted. You can call me Ted. First of all, yes, I'm ready to prepare my argument. Shall I proceed?

20541. **THE CHAIRMAN:** Please do.

--- FINAL ARGUMENT BY/ARGUMENTATION FINALE PAR MR. EDWARD FARQUHAR:

20542. **MR. FARQUHAR:** Wonderful. Okay. I'd like to say thank you very much.

20543. This is my very first time speaking before the Board as an intervenor, or in any matter as a matter of fact, or in any setting quite like this. So I'd like to say thank you very much for this opportunity. I really do appreciate it. And I wish that I could be there in person, but it is such a long distance between here and Calgary. It just wasn't feasible this time around for me to come out.

20544. So having said that, I'd like to start off by giving you a summary of why I'm here and what I wish to accomplish with this argument today.

20545. My argument today is going to be limited exclusively to the area of computational pipeline monitoring leak detection systems, or CPM leak detection systems. It's going to be fairly technical.

20546. I'm not here to comment on any other issues with this project. I don't wish to make a recommendation on whether or not it should be approved or whether or not it should not be approved.

20547. I'm not going to discuss other critical things such as the treatment with First Nations, killer whales, and the concerns of the folks in Burnaby, or tanker traffic, or whether dilbit sinks or whether it floats. These are all very important issues that you have to consider, but they're not my area of expertise and so I'm not going to comment on it.

20548. My only intention, again, is to talk about leak detection, and specifically about the conditions that you have placed on leak detection should this project be approved. I intend to explain to you how I feel that the leak detection evidence has not been adequately cross-examined so far, and that the draft conditions from the Board on this project are in my opinion not rigorous enough to meet the needs of public safety.

20549. And I would like to make a recommendation for a few more conditions that can help bridge the gap, not completely fix it, but just bridge it so that the public perception of safety provided by the CPM leak detection is closer to what is committed to by the Trans Mountain folks.

20550. I'm going to introduce myself, tell you a little bit about me so you understand where I come from. First of all, I'm a professional engineer. I graduated in chemical engineering from Queen's University, and I spent 15 years working in the pipeline industry in Ontario and Nova Scotia and Alberta. The

vast majority of my career was spent with 11 years with Enbridge Pipelines out of Edmonton. Most of the time at Enbridge I worked in the engineering department that was responsible for leak detection systems. It's my area of expertise.

20551. And I have years of experience working with the CPM, that's computational pipeline monitoring, the same software that Trans Mountain uses on their leak detection systems and which they intend on continuing to use for their new pipeline.

20552. I've built many leak detection systems right from scratch. I've also retrofitted or modified existing systems to match facilities in the field. I've done a whole wide range of leak detection systems. I've built them for very short pipelines, like, 10 to 30 kilometres all the way to very, very long ones that cross the continent over a thousand kilometres. I've done them for small diameter pipelines, large diameter pipelines, from eight inches to 48 inches. I've built them from scratch, I've tuned them all.

20553. And I've done all sorts of operating scenarios such as hot bitumen lines in northern Alberta, the ones that run over 100 degrees Celsius and need insulation. Lines with lots of batches, a wide variety of fluid types and fluid properties, including NGL and high vapour pressure, and including diluted bitumen. I have a lot of experience operating leak detection systems for diluted bitumen lines. And of course with pipelines that feature column separations.

20554. These pipeline systems that I've built, they've been successful and they have provided early warning detection assistance to the control centre operators at Enbridge.

20555. As I said, many of these lines that I've built are very similar to the ones that Trans Mountain operates, you know, they're a thousand kilometres long, very large diameter, 30 to 36 inches, they have dilbit in them, they have column separations. So I have a lot of experience with what the folks at Trans Mountain are dealing with.

20556. In addition to building and maintaining these things, I have a lot of experience in testing. I've performed dozens of leak tests on pipelines.

20557. I've coordinated field tests, like, from the field where we've actually tapped into a live, running pipeline; did a fluid withdrawal into an oil truck. We did a blind test on the operator to see if they did the right actions and followed the

right procedures.

20558. I've also done a lot of simulated leak tests using modified SCADA data to model a leak on an offline model. This is exactly the same way that that Trans Mountain tests their pipeline.

20559. And I've done an extensive amount of research and development testing. I've tested the effect of different types of degradation of the leak detection system. So I'm aware of the different types of events that cause leak detection systems to fail and the order of magnitude of those failures.

20560. In addition, I'd also like to say I've done a lot of on-call support. I've been a first responder, carried a pager 24 hours a day, seven days a week for years. I've provided support to answer requests about leak detection alarms and responded to emergencies; could be either in the day, or overnight, or on weekends or holidays.

20561. And finally, I've also co-written a couple of industry papers on leak detection.

20562. Oh, one other thing, I've written evidence. I've written evidence for National Energy Board application projects for Enbridge such as Line 9 and the Gateway Pipeline. And I have also answered information requests on those projects and other projects. And I've been my company's subject matter expert for responding to information request on incidents both in Canada and the United States.

20563. So having said that, I don't think I can say that I've done everything that there is to do in leak detection but I've done a lot and I've seen a lot. And not all of it was good. I was part of the company during the incident in the Kalamazoo River in Michigan in July 20,000 -- 2010.

20564. I remember that day that an incident -- when the leak recovered very, very clearly. I remember being called early that morning; I was asked for my opinion. The operators had shut down the pipeline at that time; they were very concerned that something had happened. They asked me to look at it and they said, "Ted, can you" -- I remember this very specifically. They said, "Ted, we have oil going in and it's not coming out. We're not sure what's going on."

20565. And I remember I opened the leak detection system and I looked at it.

I immediately looked at the flow and the pressure trends and you can see from the day before there was a sharp, sharp drop off. It looked like it could have been a rupture; it probably was. And then you see a couple of hours later, the next shift came along, and how they tried to pump it up.

20566. They thought it was a column separation. It wasn't; it was a leak. And you look at the volume, you knew that was a very bad -- a very bad incident right away. That was a bad day for me, a bad day for the company.

20567. Actually, it went for weeks and months and a -- two years, really, before the report came out. That was very bad.

20568. It had a very profound impact on me and that's one of the reasons why I'm here today. I left the industry two years ago. Now I'm just a regular civilian. I live in Halifax. I'm in -- I'm in the midst of a career change.

20569. Currently, I'm going to school and I'm retrained to be an auditor. As I said, I live in Nova Scotia and geographically I'm about as far away removed from this project as can still -- as you can be and still be in the country, yet I still have an interest in public safety and in improving the pipeline leak detection systems.

20570. So I'm here because I want to help out and I want to do that through the public involvement hearings like this. The only area that I can really help out with is in the area of leak detection because that's the area that I'm a subject-matter expert.

20571. My opinion is based on years of experience and, in my opinion, I find that the leak detection evidence on major projects such as this, and on the leak detection capabilities of major pipelines in general, is not currently being examined as rigorously in the public light and by regulators as I feel that they should be.

20572. One reason for this is a good reason; maybe that the science in leak detection is not really broadly understood unlike, say, other areas of pipeline science like pipeline integrity and therefore we don't really vet it quite as rigorous as we could.

20573. In any case, I don't think it's vetted adequately and I think it represents a risk to public safety. So my goal, the only reason why I participate in this

hearing, was to apply a more rigorous examination of the leak detection capabilities; and I would like to, if necessary, prescribe a few additional conditions to Trans Mountain to improve the safety and the reliability of their leak detection system.

20574. That's why I'm here for this argument. And I hope that you will find that my arguments are helpful to you in making your decision.

20575. Now, before I get into the arguments, I want to talk about my thoughts on the hearing process today, if you don't mind, specifically with the IR process. And I imagine there are some folks here from Trans Mountain, like the lawyers and regulatory folks, and so this is for you, too.

20576. When I decided to be in this process and I applied, my attempt was to apply rigour with a line of questioning on the leak detection system. My hope was that I could have an open and honest conversation with the leak detection experts at Kinder Morgan and I wanted to test the capabilities of their leak detection system in the public environment.

20577. I wanted it to be open and honest and I used -- because when I used to answer information requests on these projects when I worked at Enbridge, I answered every single part of the question.

20578. And I liked to ensure that I also answered the intent of the question so that the requestor was very satisfied with the quality of the answer and that they were able to get the information that they wanted. Whether it was good or whether it was bad, I thought that was really the most important thing; it was very transparent.

20579. I never relied on wiggle words that would allow me to present the information that while truthful may be misleading to a user, nor did I ever attempt to deflect a question.

20580. My experience on this project, however, was unfortunate. I found that Trans Mountain, generally speaking, was excellent at avoiding and deflecting my questions. I know I'm not alone; a lot of other intervenors feel this exact same way.

20581. I was unable to get complete answers to most of my questions and, in particular, for IR No. 1 I barely got any responses whatsoever. I don't believe the

engineers, who are the experts, ever saw those questions. I think they were all deflected by maybe the legal team or the regulatory board.

20582. Now, to their credit, I want to say this. To Trans Mountain's credit, the second round of IRs was a lot better. They answered several of these questions in a very, very respectful manner, very transparent, and I really, really appreciated their candor. I thought it was excellent.

20583. Still, despite that, a lot of the questions had gaps. Some of them had very significant gaps. And overall, I remain disappointed with Trans Mountain's response to my IRs. I felt that their approach was kind of adversarial at times. And I also saw that they would happily use every legal tool available to them to limit the amount of information on the public record.

20584. I'm not the only one. Everybody else -- a lot of people said the exact same thing as what I'm saying here. It's clear.

20585. Anyways, the impact on me, overall, is that I've lost some trust in this company. The lack of trust is one of the reasons why I've come up with one of the recommendations I'm going to mention later on in this presentation.

20586. So to Trans Mountain, I'll say to you that just because you can use legal tools to avoid answering questions, that doesn't mean that you have to do it. I think that providing really complete, transparent answers will serve you well in the future and the public will maybe cut you some slack. So I hope you change your approach next time.

20587. Now to the Board, I want to talk about the oral cross-examination because I feel that if it was included in this hearing, it would have helped to compel much better answers and to test the evidence before us.

20588. You know, Elizabeth May, earlier had mentioned that there is a fragility to this evidence and she said repeatedly how it was due to the lack of an oral cross-examination. And I agree with her.

20589. There was a lot of evidence supplied about the leak detection system but I was not able to test it through this written IR process. And I think I would have been able to if I'd been able to have a conversation with their expert on -- in an oral cross-examination. So I think that limiting access to only a series of written exercises failed to achieve the results that we wanted.

20590. And I'll say to the Board -- to the credit of the Board, I don't believe at all that this decision was made under any duress. I believe that it was an objective decision made only with the best intentions of the public and to meet the strict requirements that you have specifically around timing. I thought you -- I believe that you thought it would help out the hearing; it would not cause a problem.

20591. I also believe, and like I say that I'm very, very happy with my dealings with the National Energy Board. And I'm not trying to suck up to anybody here. I've talked with several of you guys and you've always been very accommodating and always spent a lot of time with me, and I really appreciate that.

20592. And I think you're excellent people, the right people to make the decision on this. Okay? But I would I probably say that, in retrospect, we might agree, hopefully, that it was a mistake to not include an oral cross-examination and that in the future we should be including that for all major projects such as this.

20593. Okay. I'm going to move on now. Thank you very much for my argument. My argument consists of two main issues. The first is going to be around the sensitivity of a leak detection system and the second is around the degradation of a leak detection system.

20594. First, I will discuss the issue and then I'll make a couple of recommendations for conditions, and then I'll move on to the next issue. So let's talk about sensitivity.

20595. And to the Board, if you're not familiar exactly what sensitivity is, I'll just describe it to you.

20596. Sensitivity is a pipeline industry-specific term, as per EPI 1130, which is what most companies use, including Trans Mountain. It is one of the four metrics in which you measure the capability of a leak detection system and it is by far the most important and by far the most relevant to the public. What it is, it is a measure of how small a leak that the leak detection system can reliably detect and how fast it can detect that leak.

20597. The sensitivity of a leak detection system is the most critical benchmark and it is a benchmark on which the project should be judged on. The

reason is, any pipeline incident will have a devastating effect on the public and the environment. We all know that with this pipeline.

20598. The sensitivity of the leak detection system is going to be a measure of how bad that leak -- how big that leak could get before it's detected or before emergency action can be initiated. And any leak below this sensitivity will go undetected by a leak detection system and it could run for days, weeks, months and it could really exasperate it and cause a very big problem.

20599. Now, I have reviewed the evidence prepared by Trans Mountain on sensitivity very closely and I would conclude that they have not provided adequate information about the sensitivity capabilities of their leak detection system. It's kind of a mystery, in my opinion.

20600. Of the information that they had provided, it appears to represent only the upper limit of the capability of that leak detection system, at the very best capability, in my eyes. And more importantly, Trans Mountain has refused to make any kind of commitment on the minimum sensitivity that they will maintain for safe operation of this pipeline. To me, that's a big issue.

20601. Let's review some of the facts.

20602. The first fact is, regulations for leak detection in Canada are voluntary. Annex E of Z6 -- CSA Z662 is only informative. It's not mandatory. It's only informative. So companies do not have to use it.

20603. Now, Trans Mountain, to their credit, has said, "We will apply this. We will make it mandatory."

20604. And so I say that's very good, but still, the standard -- I'll tell you a little bit about it. It is a -- I would describe it as a very useful, very thorough document for setting requirements on the design and the operation and the maintenance and the documentation and testing of a leak detection system, but there's no performance criteria in it, nothing at all. It's more of a -- it describes the management system that you would have for a leak detection system.

20605. And I've been charged with making a leak detection system to comply with Annex E a lot of times in the past, and it's a very time-consuming process but otherwise it's pretty easy to meet all those requirements in Annex E because they're not that rigorous. It's a nice document, but it's not mandatory and it does

not address the most important aspect of leak detection, which is the sensitivity of it.

20606. The next factor is, there's no performance criteria in Annex E, as I just described. So I'll give you a hypothetical example here. Imagine if I found a company that has a leak detection system with a sensitivity of say, two percent of nominal flow. That's what Trans Mountain says. Now imagine one that has as nominal -- a sensitivity of 40 percent nominal flow rate, okay?

20607. Both pipeline companies seem to say that they're compliant with Annex E, yet it's very clear that the pipeline with 40 percent sensitivity is not meeting the needs of the public. It's also severely deficient, yet why is it considered compliant? It's because there's no requirements in Annex E on sensitivity.

20608. In my opinion, the lack of the performance criteria represents a gap between what regulations require and what the public expects. I think that the public would expect that any leak detection system being used on a pipeline like this should have a minimum requirement in that sensitivity should be good. Yet there's nothing in the regulations there, nothing at all.

20609. Trans Mountain has told the public over and over again in their -- in the hearing documents and in their press releases about how they use reliable automated safety systems and how they're protecting the system. I say that's very good, but without any kind of performance criteria these systems may not be providing the level of protection that the public believes is there and that the public deserves. We just don't know, and actually, I never really had a chance to cross-examine them about this.

20610. So though, when Trans Mountain states in their final argument, as they did on page 150, they said that their leak detection system, "Far exceed regulatory requirements" of leak detection systems, that's a guess. I'm certain that you're willing to exceed the regulations but that statement, to me, doesn't really say a whole lot. It doesn't say anything about what really, truly matters about leak detection, which is sensitivity.

20611. The estimated sensitivity to two to five percent is going to be between two and five percent nominal flow rate, and based on my experience, I would say that industry average at best, that not really exceeding capability, in my opinion.

20612. Moving on to fact number three. Trans Mountain has not yet performed any kind of engineering analysis to determine what the sensitivity is going to be. They have stated in their arguments that they believe sensitivity is going to be between two and five percent. This is going to be over a two-hour period, so what that means is that you have to have say, a two percent leak active for two straight hours before the alarm system triggers.

20613. Okay, and they say this is based on their past experience. And I say that that's reasonable, in my opinion. They also say that they're going to be better than their current pipeline because they have better equipment, and that's probably another reasonable assumption.

20614. But the issue I have is that they don't have any kind of scientific backup to support this. It's really just -- it's an informed opinion, and that's what we're left with, the public is left with. We're left with this number of two to five percent.

20615. With regards to this number, I think it can be misleading. There's two reasons why I think that the number doesn't fit and can be kind of misleading.

20616. The first is that the tests that they did to get this number is based under a leak test under steady state conditions. Steady state conditions represent the easiest conditions for a leak detection system to detect a leak. I've done these tests before. We run it under steady state because it's textbooks, and it's ideal for understanding baseline sensitivity, but it doesn't tell you the whole picture, which is what your sensitivity's going to be like under the full gauntlet of operating conditions that you'll experience on your pipeline.

20617. In the real world, there will be transients on your pipeline and every time you have a transient, sensitivity will decrease. I've verified this in tests of a leak detection system under steady state versus transient scenarios and it's measurable.

20618. Some examples of the transient conditions that would impact sensitivity that I'm talking about are very, very basic types of operations, okay? These would include a pipeline start-up, pipeline shut down, change in flow rate, turning on pump stations, a change in the set pressure; anything. All those things will impact your sensitivity for at least a short while.

20619. The next reason why it could be misleading is that Trans Mountain

uses variable thresholds. They see this many, many times in their documentation.

20620. While I personally am not aware of what there proprietary algorithm is for the variable thresholds, I have enough experience to know that variable thresholds are designed to be at their lowest, i.e. their very best level, under steady state conditions. So if that pipeline is not under -- operating under ideal conditions, the thresholds will rise. As thresholds rise, sensitivity will get worse.

20621. So for those two reasons, I believe that the numbers that they presented is really under ideal best-case scenarios, and that in truth, the actual sensitivity of this pipeline will be a larger range, which could be -- trend to be a little bit worse.

20622. So in summary of this issue, what we know is that this number presents -- presented by Trans Mountain likely represents the upper limits of their capabilities. It may not reflect the actual range based on transients that the pipeline will experience. We don't know because we haven't had a chance to cross-examine.

20623. Second, this number could be misconstrued by the public, what they see as a nice low number which could be perceived as very optimum, which looks nice but might just be optimistic and not reflect reality. They could give a false sense of security to the public and to -- even to members of Trans Mountain, who are operating on it.

20624. Third thing is, there's no regulatory requirement for minimum sensitivity, as I've discussed.

20625. Fourth, the number that's on the public record, which is this two to five percent, is not a commitment by Trans Mountain by any means. It's for information only, to give you an idea of what they expected it to be.

20626. Fifth, after this hearing's done, there's no public record on what the sensitivity on this line will actually be. We don't know. There's no obligation for them to report it. All that's going to be there is this two to five percent.

20627. Sixth, there will be no further discussion on sensitivity capabilities for the duration of the project.

20628. And seven, sensitivity, as I discussed, is the most critical measure of a

CPM's performance and it's in the best interest of the public to know what the sensitivity of these pipelines are.

20629. So this is an issue for all these reasons I've mentioned before and I could describe it as following -- a scenario as following: that and Trans Mountain build their pipeline, they're operating it, and they test it and it has a 15 percent sensitivity, not 2 to 5.

20630. There would be no recourse from the Board if this happens. There's no obligation for them to report it. They could just put it in their management system as something to fix up over time. And as I'm sure they would try to fix it as fast as possible, but we in the public wouldn't know, and neither would you as the Board. And I think this represents a safety risk. And this should be on the public record so that people know what is occurring, and that it would be an impetus for Trans Mountain to fix things faster if it comes down to that.

20631. Now having said all of that, I'm going to make two conditions that I recommend, okay, to address this issue.

20632. The first recommendation is Trans Mountain must perform a leak detection test on all of their CPM leak detection systems for both pipelines shortly after they start up the line, and on an annual basis going forward for the duration of the pipeline use.

20633. These conditions will ensure that Trans Mountain is aware of what their capabilities are on an annual basis, and they can track performance over time and it will be the impetus for making improvements.

20634. And I'd like to add that this already is a requirement of Annex E, which they have said they are committed to. You do have to test your CPM on an annual basis. But I think it would be helpful for it to be a special condition from the NEB as well so it's very clear. And it also ties in with my second condition that I'd like to recommend.

20635. The second condition is as follows. For each of these leak tests in my first condition I talked about, a summary of the test results for each leak detection system must be made public. This doesn't happen right now but it should. The minimum information in this public report would be: test date, which line was tested, the located that was tested, and the type of test, i.e., whether it was a simulated leak test or a fluid withdrawal test or so on. And finally, the test report

should say what the tested sensitivity was.

20636. This is very important to the members of the public like the people in Burnaby who reside in the area of the pipeline. They'll know exactly what that CPM -- what that leak detection capability is, and it will provide an impetus for Trans Mountain to continually improve it.

20637. Okay, that's the first issue.

20638. The second issue I'm going to talk about before I complete my presentation is about degradation of leak detection systems sensitivity and the actions taken by Trans Mountain in the event of degradation.

20639. Degradation of leak detection is a term. It's a term for what occurs when the sensitivity of a leak detection system decreases, and it can be caused by many things. For example, a data outage from SCADA. That will cause a complete degradation of the leak test capabilities. A partial data loss, like loss of one pump station. That would cause only a partial degradation of the capabilities of a leak detection system.

20640. Other things, oh, a bad pressure transmitter, a bad flow meter, a bad temperature transmitter, a bad viscometer, densitometer. Each of these things drive a leak detection system by Trans Mountain, and if they're lost you lose that data that's driving the model so your model suffers.

20641. Other things would be a batch of fluid being injected into the line that has unexpected fluid properties, say much more viscous than expected or much less viscous than expected. Other things would be a delay in SCADA data.

20642. So degradation, as you can guess, is a very significant operating issue. It faces all operators of leak detection systems such as Enbridge and such as Trans Mountain. It happens on a regular basis, especially if you're a company that runs dozens of these pipeline systems.

20643. Often these degradations are just minor and short-term, but sometimes they're very significant and they actually represent a safety risk. In all cases, an expert should be monitoring the leak detection system to initiate corrective action to mitigate the degradation and maintain the leak detection system in a healthy, working order.

20644. If it's not mitigated, degradation represents a safety hazard as the leak detection system is no longer operating as expected and is no longer providing the level of safety required by the public.

20645. Let me get to the crux of this issue. In my IR 2, 2.8J, I asked Trans Mountain -- I said -- I asked them -- and I'll paraphrase -- is there a minimum or maximum sensitivity beyond which you would declare that it's unsafe to operate the pipeline and you would initiate an emergency action such as shutting down the pipeline, or initiating a second leak detection system, or something like that. And they said no. They said no, they would not do -- make any kind of commitment along that.

20646. And the reason, and I read this several times over to try to understand it. They said their explanation for not making this commitment is -- I'll paraphrase -- one, the CPM, the leak detection system is complex and two, the thresholds are dynamic. I was very confused with this answer. Just I felt it was honestly a non-answer. It doesn't make sense to say you're not going to make a commitment because things are just too complex.

20647. I know from firsthand experience that leak detection systems are very, very complex but you certainly can make a commitment on something like this. There is a way and they refuse to do that. So I was kind of disappointed with that.

20648. Later on in their response to me they did discuss some platitudes. They had platitudes about how important a leak detection system is, and how Kinder Morgan is committed to continuous improvements and to public safety and so that's good. But to me there's still a gap there. They're unwilling to make any commitment there. But I see an issue where you could have a pipeline being severely degraded and there's no requirement to shut that pipeline down even though it's an unsafe model.

20649. In the current regime of how pipelines operate in Canada, as far as I can see, we rely on pipeline companies, the operators, to know when it's safe to run a pipeline and when it's not. And we rely on them to make the right decision to initiate emergency responses whenever required. And I agree. I've worked in this industry for a long time and I agree that in most cases yes, they do make the right decision. I've been there. I know there's very good people there who really care, and there's no doubt they would try to make the right decision. But that doesn't always happen.

20650. Mistakes happen. Staff aren't properly trained and they might not identify the warning signs, or there could be complacency. That does happen in a leak incident; some very well-known incidents have happened because of complacency.

20651. Personally I don't think this approach is always adequate, this approach of letting companies always decide. I think sometimes we need to be more prescriptive. And as I mentioned earlier in this presentation, I've lost some trust in this company based on their responses in their IRs.

20652. I don't really believe that the public has tolerance for pipeline companies making mistakes when it comes to leak detection system. I really don't. And I think we should have some prescriptive conditions in there to help mitigate the issues from things like degradation. So to address this issue, I think a more prescriptive condition should be placed on this pipeline project. Should it proceed it will reduce the risk.

20653. So this conditions is as follows. Trans Mountain must create an operating procedure in their control room that would one, state the worst sensitivity allowable by the leak detection system beyond which an emergency action must be required. So i.e., a shutdown or implementation of a backup leak detection system of some sort.

20654. Two, Trans Mountain must report the sensitivity level to the NEB and to the public as part of their annual leak testing reports.

20655. What this will accomplish is that Trans Mountain will always have to be aware, actively aware about the sensitivities in the leak detection system and they must immediately -- when sensitivity is degraded and when it's unsafe -- they must immediately initiate a safe operating procedure to improve safety and reduce risk.

20656. And with that, I'm really done my argument now.

20657. So I'd like to say thank you all very much to the Board members for your attention to this presentation. I really sincerely appreciate this opportunity.

20658. I would also like to thank all the intervenors who participated.

20659. I'd even like to thank some of the folks at Trans Mountain, the ones who answered my questions in a really transparent, open, honest conversational approach. I really appreciate that, whoever you are.

20660. And with that, I'm going to finish my presentation. And I would gladly answer any questions that you may have.

20661. Thank you.

20662. **THE CHAIRMAN:** If you could give us a moment, Mr. Farquhar.

20663. **MR. FARQUHAR:** Thank you.

--- (A short pause/Courte pause)

20664. **THE CHAIRMAN:** Thank you, Mr. Farquhar. The Board have no questions of you. And we acknowledge your participation as our last presenter today from the East Coast, and I get to go home to the West Coast later today.

20665. So with that, we thank you for your participation today.

20666. **MR. FARQUHAR:** Thank you very much for the opportunity. Goodbye.

20667. **THE CHAIRMAN:** On behalf of the Board, I want to thank all intervenors -- intervenors, comment letter writers and Trans Mountain for their participation in this proceeding.

20668. The Board also recognizes the work of our court reporters, sound and video technicians and the committed and dedicated staff of the Board.

20669. This is the end of the Intervenor summary oral argument portion of the Trans Mountain Expansion Project hearing.

20670. As set out in the hearing order, Trans Mountain may reply to intervenor final arguments. The Board has decided that Trans Mountain's written reply is due on Wednesday, February the 17th at noon Mountain Time.

20671. The Board will consider the evidence already filed on the record and the arguments made and to be made regarding the evidence. The Board intends to

release its recommendation report within the legislated time limit of May 20th, 2016.

20672. With that, we are concluded.

--- Upon adjourning at 11:30 a.m./L'audience est ajournée à 11h30