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 33

Hearing held at
L'audience tenue à

Delta Burnaby Hotel and Conference Centre
2nd floor, 4331 Dominion Street
Burnaby, British Columbia

January 27, 2016
Le 27 janvier 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 Burnaby, British Columbia, Wednesday, January 27, 2016
Audience tenue à Burnaby (Colombie-Britannique), mercredi, le 27 janvier 2016

BOARD PANEL/COMITÉ D'AUDIENCE DE L'OFFICE

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

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

Intervenors/Intervenants
Michael Hale
- Mr. Michael Hale

Yarrow Ecovillage
- Ms. Suzanne Hale
- Ms. Wendy Baker

Grasslands Conservation Council of British Columbia
- Mr. Scott Benton

Cowichan Tribes
- Ms. Sonya Morgan

North Shore No Pipeline Expansion Society
- Ms. Janice Edmonds
- Mr. Tim Howard

Metro Vancouver
- Ms. Frieda Schade
- Mr. Ralph Hildebrand
- Mr. Roger Quan
- Ms. Alice Toal

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 9:02 a.m./L'audience débute à 9h02

17266. **THE CHAIRMAN:** Good morning and welcome to this morning session here in Burnaby which is part of the National Energy Board's hearing regarding the Trans Mountain Expansion Project. We will continue to hear intervenor summary oral argument.

17267. And we acknowledge that today we're being on the traditional land of the Coast Salish people.

17268. 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 Mr. Phil Davies. We are the Panel assessing the Trans Mountain Expansion Project Application.

17269. I just want to take a brief moment for a housekeeping item.

17270. In the event that we hear a hotel fire alarm, the procedure will be to exit the hearing room using the entrance that you came in. Once you are outside the hearing room, there are two evacuation routes. The first is directly to your left when you exit the hearing room doors, and the second is located beside the registration desk where some of you received your lanyard. Uniformed security guards will be at both locations to facilitate your exit. Please follow their instructions.

17271. Once outside the building, proceed to the hotel muster point located on the northwest corner of the Delta Burnaby Hotel and Conference property where Sumner Avenue and Manor Street intersect. At the hotel muster point, please ensure all members of your party are accounted for and await further instructions from the Delta Burnaby representatives.

17272. As indicated in Procedural Direction No. 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 providing oral summary argument.

17273. There is a timer that will indicate a green light for the first 35 minutes, switching to yellow for the last 3 minutes of your speaking time. Finally, when your time is up a red light will come on. And if necessary, the microphones will be switched off, although I will warn you before this happens.

17274. With that, I think we're ready to get underway this morning. And this morning we'll be hearing first from Mr. Michael Hale, followed by the Yarrow Ecovillage, and finishing this morning with the Lower Nicola Indian Band.

17275. And I would like to request the counsel for Trans Mountain to introduce them to our presenters this morning.

17276. **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 project.

17277. **MR. CHAIRMAN:** And I was wondering if -- have any intervenors got any preliminary matters for this morning?

--- (No response/Aucune réponse)

17278. **MR. CHAIRMAN:** I see none.

17279. So then Mr. Hale, we are ready to hear your oral summary argument and we're pleased to proceed.

--- FINAL ARGUMENT BY/ARGUMENTATION FINALE PAR MR. MICHAEL HALE:

17280. **MR. MICHAEL HALE:** Good morning, Panel.

17281. As one who's directly affected, I wish to acknowledge that we are here today on unceded territory of the Coat Salish First Nations.

17282. I'd like to open by reflecting on the words of Eddie Gardner, an elder of the Stó:lō First Nations. He said:

> *"I welcome all those who come to our territory who will treat the land, water, air, and the creatures, including humans, with respect."* (As read)

17283. I take this charge seriously.

17284. I chose to be an intervenor in the review of Kinder Morgan's proposed

expansion of the Trans Mountain pipeline. And if you'll forgive me, I will use Kinder Morgan and Trans Mountain interchangeably.

17285. I chose to be an intervenor in this proposed expansion because I care about British Columbia and Canada. In addition to more than 30 years in advisory, management, and senior management jobs for the federal government, I have worked for several non-profit organizations devoted to social and environmental issues.

17286. Since the mid-1990s, I've spent hundreds of hours working on habitat restoration in the Upper Fraser Valley. I'm very familiar with the destruction of natural habitats through development.

17287. Because of this, in 2002, I decided to devote myself to finding a more sustainable way of living on the planet and became a founder of the Yarrow Ecovillage, who you're also going to hear from, my partner. For the past 20 years, I have worked at preserving the land, water, and air. I believe that in doing so we preserve the creatures, including ourselves.

17288. The land that I live on is crossed by the Trans Mountain pipeline. When we bought our property, we were aware that the pipeline brought crude oil to the coast to supply local needs. In 2012, I learned that the contract with the people of B.C. to permit a pipeline to supply oil from Alberta to refineries in southwestern B.C. and northern Washington was being secretly violated by Kinder Morgan. I learned that increasingly the product being shipped was diluted bitumen, not for local needs but for export.

17289. We are here today to consider the matter of Kinder Morgan's proposed Trans Mountain Expansion. The governments of Canada and Alberta evidently believe that it would be a good idea to build pipelines to the east and west coasts to, "get our resources to market." The resource that they are talking about in this case is raw bitumen. In my remarks today, I'll explain why this is a bad idea.

17290. The Government of B.C., which should know British Columbians better, straddles the fence, setting conditions for approval of Kinder Morgan's monstrous pipeline expansion proposal. Yet, the peoples of B.C. will not give consent. Why not? I'll summarize some of the reasons in my presentation today.

17291. Kinder Morgan's -- I said monstrous -- two metre high stack of verbiage is little more than corporate PR. It's flashy, but it lacks substance. It

sets out arguments that are based on a calculus that might have held sway in the 1950s or even the 1980s, but fails to reflect 20th century realities, socio-economic, ecological, or cultural needs of British Columbia or Canada.

17292. I intend to focus on three things today: the risks of transportation diluted bitumen, the lack of economic benefits to be derived from exporting a raw resource, procedural concerns related to this review.

17293. The first issue, risks of bitumen spills. When I learned in 2012 that Kinder Morgan was already secretly shipping diluted bitumen through the Trans Mountain pipeline for export to Pacific Rim markets, I was shocked. I was aware that bitumen was being shipped via Keystone 1 and other pipelines to the United States. I also knew there was a heated debate about the Northern Gateway pipeline and Enbridge's proposal to ship diluted bitumen to the west coast near Prince Rupert.

17294. I searched for NEB approval for shipment of bitumen via the Trans Mountain pipeline. I found no formal approval.

17295. Since 2012, I have attempted to find out all I could about the nature of diluted bitumen. I learned that this substance has properties that are different from conventional and synthetic crude. These differences increase the risk to communities and ecosystems through which it is transported.

17296. To summarize, bitumen is a thick, viscous substance that must be diluted to be transported in its raw form through pipelines. The substance that's used to dilute the bitumen are volatile hydrocarbons, for example, natural gas condensate.

17297. According to the Material Data Safety Sheet, diluted bitumen contains 50 to 90 percent bitumen, 10 to 50 percent hydrocarbon diluents and small but varying amounts of benzene and hydrogen sulfite. That's from Cenovus MSDS for heavy crude oil diluent mix, April 10th, 2013.

17298. Kinder Morgan claims that bitumen behaves similarly to other forms of crude oil, that it is simply heavy crude. While this may be true in many cases, it is unfortunately not true in the case of bitumen spills.

17299. In diluted bitumen spills, the first thing that happens is the volatiles off gas separating from the bitumen. This invariably happens and if people are

nearby, they're likely to experience symptoms such as headaches, difficulty breathing, nausea, and vomiting. This happened in the spill into the Kalamazoo River near Marshall, Michigan in 2010 where over 300 people were treated in hospital.

17300. I reference this information in my Information Request in May 2014, citing the U.S. National Transportation Safety Board Pipeline Accident Report on this incident, that the volatile hydrocarbons separated from the bitumen in the Michigan spill is a fact. And since I previously cited it, it should be regarded as submitted into evidence.

17301. Another thing happened in Michigan of a particular concern to communities and ecosystems. Once the volatile hydrocarbons had off-gassed with the passage of time, and not much time in this case, the bitumen sank in the water column. This too is well-documented in the NTSB report and must be taken as fact and in the evidence before you. The bitumen, thus, did not float as is common with other forms of crude.

17302. In the Michigan spill, the complexity of the cleanup was dramatically increased by this fact. Four years and over $1 billion later, the river was opened, although EPA officials have stated that the Morrow Lake Marshes may never be returned to their pre-spill state.

17303. In my first Information Request, I spent considerable time formulating questions about the risk of spills and the effects on health. In section 1.2 of my Information Request, under the heading "The Risk of Diluted Bitumen Shipments", I asked two questions about the spill characteristics of diluted bitumen. The first was, "Given" -- or it was number -- it was item F -- "Given the known effect of bitumen sinking in sediment-rich water, how do spill response plans address this?"

17304. And item G, "What training has been developed and given to first responders to address the special properties of bitumen?"

17305. Kinder Morgan's response to these two questions was, to the first, "Please refer to the responses to Katzie FM IR No. 1.11a and 1.11b." That's exactly how it was written. I think they're referring to Katzie First Nation. That would be FN.

17306. And in the second -- to the second question, they again said, "Please

refer to responses," in this case, "to NDP IR No. 1.15g and City of Burnaby IR No. 1.25.01f."

17307. I was particularly interested in the Katzie -- what was said to the Katzie. But I must tell you, I found this immensely frustrating. The company's references did not include file numbers, page numbers, anything. So I had to search the NEB database to try to find what Kinder Morgan might be referring to in response to my question about the behaviour -- the spill-response plans in bitumen spills.

17308. I came across, after searching a 481-page document entitled "Trans Mountain Response to the NEB IR No. 1". After several searches, I came across this statement:

> *"Trans Mountain has researched and continues to investigate response tactics for oils that float, sink or submerge."*

17309. It goes on to say that,

> *"Trans Mountain has conducted its own research [and refers to the Gainford study, a Study of Fate] ...Fate and Behavior of Diluted Bitumen Oils on Marine Waters)..."*

17310. It claims that Trans Mountain *"investigated the fate and behaviour of represented diluted bitumen products, as well as the effectiveness of response equipment and tactics including use of dispersants and in-situ burning"*.

17311. Earlier in this same document on page 348, in response to a question about the different findings of the Environment Canada Report of 2013, which found that dilbit did in fact, under certain conditions, sink, I found these statement by Kinder Morgan.

> *"The synthetically-weathered dilbits exhibited water uptake with agitation, but all remained buoyant (floating) on saltwater…"*

17312. And,

> "T*he differences in weathering rates between CLB and AWB"* [those are forms of dilbit] *(and resulting compositions) are*

> *identified and are consistent with what was observed in the Gainford report."*

17313. And then:

> *"Both studies document CLB and AWB physical properties and behaviours that are amenable to on-water mechanical response countermeasures (booming and skimmers) for at least the first ten days of oil on water."*

17314. Emphasis is mine there.

17315. In other words, and to try to answer my own question about spill response plans, there are none. There are no spill response plans that contemplate diluted bitumen sinking in water as it did in Michigan.

17316. However, we now have confirmation, on December -- in a December 2015 report from the U.S. National Academy of Sciences that diluted bitumen can behave in a manner that was documented -- in the manner that was documented in the NTSB report into the Michigan spill.

17317. It seems clear that Kinder Morgan's refusal to admit that bitumen can sink, in certain conditions, places communities and ecosystems along the pipeline and tanker route at grave risk.

17318. The second issues that I want to address is the economics of exporting bitumen, raw bitumen.

17319. Kinder Morgan has devoted considerable ink to the "economic benefits" of building this pipeline. The company's case depends on the notion that investing in a capital-intensive venture to mine and export a raw resource to Pacific Rim markets will create jobs and create an economic multiplier effect that will benefit the nation.

17320. If this were true, the argument would depend on treating the land, water, air, people and communities as "externalities"; however, this is not true. The investment of 5.4 billion in anything would create a multiplier effect. However, if you want economic benefits for the greatest number of people, it is best to consider who gets most of the profits.

17321. Kinder Morgan claims to contribute to communities, yet from 2009 to 2013 Trans Mountain's combined federal and provincial Canadian corporate tax contribution averaged just 1.5 million per year. During this same period, Kinder Morgan made an average of 171 million per annum in distributable cash flow available to its U.S. parent. So that ratio of 1.5 million in tax and 1.71 in distributable cash flow -- that's less than one percent; it's .87 percent. That's the tax rate.

17322. It's a fact that the raw bitumen is all for export. This means that we will be exporting thousands of refining jobs to other countries. While Canada is a net exporter of crude, it is a net importer of refined petroleum products. We'll be buying back our own resource.

17323. The original pipeline built in 1953 was sold, as I said, on the basis of supplying Alberta oil to meet local needs. The project supplied oil to refineries in Burnaby and Puget Sound but again, the bitumen is all for export not for local needs.

17324. The Chevron refinery can't get enough conventional or synthetic crude from the pipeline to meet local markets. It must transport -- last I checked -- over 8,000 barrels per day by rail. This seems to me not only bad public finance but also the violation of a social contract with the people of B.C.

17325. I would ask the Panel Members how many permanent jobs would result if Kinder Morgan's expansion were to be built? Do you know the answer? I couldn't find it in Kinder Morgan's application, although the company's information sessions projected at various times numbers between 50 and 100 jobs. That's permanent jobs.

17326. There's a graph in the Conference Board of Canada's report contained in Kinder Morgan's application that suggests there may be about 100 full-time continuing jobs after construction. Can that be true? One hundred (100) permanent jobs after the expenditure of billions? This surely is not a benefit for B.C.

17327. Next, I'll ask you to consider what investing $5.4 billion in clean energy, electric transportation, smart grids and energy conservation would do if distributed across all regions of B.C. Have you done the math on that? I would be pleased to provide you with some comparative studies, though I am pretty sure that you won't accept them. It's not your mandate.

17328. Issue three then. I'll call it "evidentiary and procedural concerns". The National Energy Board's ongoing assessment of the Trans Mountain Pipeline Expansion Project has again demonstrated why the tight timelines imposed by the former Conservative federal government's restrictive amendments work to defeat the kind of rigorous scientific assessment that the public is led to expect and undeniably deserves.

17329. In ruling December 17th, 2015, the NEB refused to admit into evidence a formative review by the U.S. National Academy of Sciences commissioned by Congress, U.S. Congress, to assess the potential environmental consequences of spills of tar sands oil, i.e., diluted bitumen. In so doing, in refusing to admit such evidence, the NEB claimed that the Proponent, Kinder Morgan, would be unduly prejudiced by admitting the evidence late in the hearing process.

17330. The NEB thereby refused to extend its timelines to incorporate this new and highly relevant information. Notably, however, failure to evaluate existing evidence can result in unnecessary harm. The NEB ruling does not address how denying admission of this new evidence might compromise its own assessment and recommendations.

17331. Third point. The National Academy's paper published December 8, 2015, addresses whether the transport of diluted bitumen in pipelines has potential environmental consequences that are sufficiently different from those of commonly transported crude oils to warrant changes in regulations governing spill response planning, preparedness, and cleanup. The answer in the report, an unequivocal yes. Yes, dilbit is inclined to submerge quite soon after a spill on water, and can sink to the bottom even if the oil is less dense than water.

17332. Tracking, confining and cleaning up dilbit is an unresolved problem that current technology does not address effectively. Moreover, regulatory processes have failed to come to grip with these concerns. By contrast, Trans Mountain's application asserts that dilbits and other group 3 hydrocarbons have been transported throughout the world, and in general -- and the general behaviour of these oils is quite comparable with respect to fate, and weathering and spill counter measures. That's in Volume 7, page 7-50.

17333. Describing the results of its laboratory analysis, the company claimed that dilbit proved no different than what might be expected of other conventional heavy crudes when exposed to similar conditions. And that would depend on

what the crudes -- what's in those crudes.

17334. Importantly, these assertions and claims are largely contradicted by the findings of the far more authoritative National Academy report. The National Academy reports makes seven detailed recommendations to U.S. regulators for changes to spill preparedness and response planning to address specifically capabilities for detection, containment and recovery of submerged and sunken oil. That's on page 6.

17335. The report goes on to observe:

> *"Although many differences between diluted bitumen and commonly transported crudes are well established, there remain areas of uncertainty that hamper effective spill response planning and response to spills. These uncertainties span a range of issues, including diluted bitumen's behaviour in the environment under different conditions, its detection when submerged or sunken, and the best response strategies for mitigating the impacts of submerged and sunken oil."*

17336. The National Academy's paper is the most comprehensive and rigorous expert review on these matters that has ever been undertaken, and directly speaks to key issues that the NEB is mandated to address. The committee that prepared the paper included Canadian and U.S. experts in a broad range of sciences, as well as in pipeline operations and spill response.

17337. Its conclusions and recommendations are at odds with the information presented by Trans Mountain. Specifically, the report emphasizes that there is currently no reliable way to clean up a spill of diluted bitumen, no certainty about the harm that a spill will do or how to mitigate that harm.

17338. The NEB's decision to omit this critically relevant information from consideration exemplifies the flawed review process, as does the basis for refusal, choosing expediency over the rights, needs, and safety of the public. Assessing projects of the magnitude of Trans Mountain, particularly ones that involve novel substances about which little is known, demands time and care.

17339. The timelines imposed on the NEB review have obstructed a thorough and careful examination of the issues. Accordingly, this most recent ruling has resulted in highly relevant evidence being excluded. The NEB remarked that in

its role as a regulator of the expanded pipeline, it could consider the National Academy's work later on. By that time, however, Kinder Morgan might already be pumping a supertanker-load of dilbit per day, with no reliable plan or equipment in place that can deal effectively with a spill.

17340. Kinder Morgan's proposed Trans Mountain pipeline expansion is set to face another regulatory hurdle when the Canadian government unveils new environmental review requirements in the coming weeks. Prime Minister Trudeau's Cabinet is preparing to detail transition plans for existing review laws -- sorry, for existing pipeline proposals as it moves to strengthen environmental laws and give new marching orders to the National Energy Board.

17341. The plans would in effect tack on additional regulatory requirements that will allow proposed projects already under review in Canada, including Trans Mountain and TransCanada's Energy East, to meet an announced higher standard favoured by the Trudeau government without restarting the process entirely.

17342. The government is committed to transition plans for important natural resource projects, while we undertake longer term "modernization on crucial regulatory agencies on which a considerable portion of our economy and our environment depends," said Micheline Joanisse, a spokesperson for Natural Resources Minister Jim Carr, in a written statement to Bloomberg, adding more details will be provided in the coming weeks.

17343. The regulatory overhaul leaves timelines for the 5.4 billion Trans Mountain Expansion in limbo. Hearings resumed for the project last week and an NEB decision is due in May under the old review system.

17344. When asked what the impact of changes on Kinder Morgan's timeline would be, one government official familiar with the plans who spoke on condition of anonymity -- because changes haven't been announced -- said no final decision has been made. The Trudeau government intends to overhaul the NEB review process but will need to pass a new law to do so the government official said, signalling the scope of changes being considered.

17345. The promise of imminent changes to the process has left many observers asking why NEB hearings are proceeding at this time.

17346. My concluding remarks -- I'd like to say that when I first encountered this 23,000 page application, it seemed calculated to discourage people from

participating, to put forward a set point of view. The company's application seemed to say, "We have a rigorous process that has produced thousands and thousands of pages of evidence". Yet, on wading through it, it's mostly boiler-plate. It's repetitive, useless garbage.

17347. My experience has been -- like dozens of other intervenors, I tried to take it seriously. In my government career, I served and learned to respect Canadian administrative tribunals but the procedures for this review have been cumbersome and frustrating.

17348. And when you, as a Board, allowed Kinder Morgan to give ambiguous and unhelpful answers to my and my colleagues' information requests and submissions, I lost faith in the process.

17349. Nonetheless, it remains a serious matter. If this pipeline were ever to be built, the risks to people and the environment, the potential destruction of our climate, the impoverishment of the lives of generations to come are beyond unacceptable.

17350. So I come here in the hope that you will be part of a new and different process. If approved, the Kinder Morgan expansion would triple the capacity of the existing Trans Mountain pipeline, allowing 890,000 barrels of refined petroleum and crude oil to move from the Alberta tar sands to the Westridge Marine terminal in Burnaby each day.

17351. Expansion would also see the number of tankers operating in Burrard Inlet increase from 5 to 34 per month.

17352. The project would involve 987 kilometres of brand new pipeline, 12 new pump stations and 20 new tanks plowing through municipalities in Vancouver and the Lower Mainland and increasing tanker traffic in Burrard Inlet and the Salish Sea nearly seven fold, having the following effects: devastating impact to land and marine ecosystems; unwavering opposition from Indigenous people; safety risks posed to residents and wildlife if an oil spill or tanker fire were to occur; increase the greenhouse gas emissions; lack of evidentiary integrity and procedural fairness; damage to local and national economy.

17353. Building a pipeline through pristine habitat such as the headwaters, streams that are tributaries of the Fraser and Thompson Rivers, will destroy

forever those wild places that make B.C. special. Just look at what the existing pipeline has done to the land, what tankers have done to the Salish Sea. We cannot take any more of this.

17354. The combined force of all of the above arguments should compel the Board to recommend against the proposed expansion. It's the right thing to do.

17355. Thank you.

17356. **THE CHAIRMAN**: Thank you, Mr. Hale, for your argument in front of us today, and the Board have no questions of you at this time.

17357. So we'll take a short break and then we will hear from the Yarrow Ecovillage. Thank you.

--- Upon recessing at 9:36 a.m./L'audience est suspendue à 9h36
--- Upon resuming at 9:48 a.m./L'audience est reprise à 9h48

17358. **THE CHAIRMAN**: We'll now hear from Yarrow Ecovillage and we have read your submissions and we'll be pleased to receive your oral argument. And if we have some questions is it okay -- would you prefer we -- if we have them as we go through or would you prefer to wait to the end; whichever one is your preference.

17359. **MS. SUZANNE HALE:** Probably at the end.

17360. **THE CHAIRMAN**: We'll respect that. Thank you, yes.

17361. Till then, we're pleased to hear your oral summary argument. Thank you.

--- FINAL ARGUMENT BY/ARGUMENTATION FINALE PAR THE YARROW ECOVILLAGE:

17362. **MS. SUZANNE HALE:** Good morning, Panel members, Mr. Hamilton, Mr. Davies and Ms. Scott. Thank you for hearing from me today.

17363. My name is Suzanne Hale and I'd like to introduce Wendy Baker.

17364. I come before you as a founder of the Yarrow Ecovillage and

spokesperson for the Yarrow Ecovillage farm team. I'm honoured to speak to on unceded Coast Salish territories.

17365. Our organic farming community of 100 is crossed by both the existing and proposed pipelines. The Ecovillage is located in Stó:lō territory. It is part of the greater Chilliwack area.

17366. We work 20 acres of certified organic agricultural land in the shadow of Vedder Mountain. We grow blueberries, kale, tomatoes, garlic, beans and much else for our families and for sale at local farmers markets. We've been nurturing the organic soil for 15 years.

17367. Water is precious to us. All water that enters the site is used, reused or returned clean to the aquifer. We manage our own waste water with a biological treatment system that relies on the best filter, wetlands that we built. It cost us over $1 million and is the only waste water system for our 33 households.

17368. I'm not a lawyer or an engineer. I'm a mother, soon to be grandmother, and a retired organic farmer. I worked the land for nearly a decade with my children.

17369. By the way, we wanted to offer you some pickles, but apparently council has indicated us -- to us that that's not acceptable, so I have the pickles here if you'd like them.

--- (Laughter/Rires)

17370. **MS. SUZANNE HALE:** But now this project threatens our produce, our livelihood, the value of our homes, our well-being and our way of life. It threatens our dream of an environmentally sustainable community. I urge you to not recommend this project and protect places like the Yarrow Ecovillage and our organic farm.

17371. But if you do recommend it be built, please consider further considerations to reduce the impact on us.

17372. In 2006, Minnesota regulators considered a similar situation and the authorities are attached to our submission of January 12th. The MinnCan crude oil pipeline was to bisect the Gardens of Eagan organic farms. Decision makers were moved by the expert testimony of Atina Diffley on the fragility of organic soil at

her farm and the disruption pipeline installation would cause. An organic agriculture management plan was mandated and the pipeline rerouted.

17373. I ask that you say no to this project, but if it must proceed, please use the best practices from other jurisdictions to protect the Ecovillage and farms like us.

17374. Since 2002, we have nurtured the soil, ourselves and our neighbours, building a sustainable community from fallow fields. Our vision has always been about living and working in harmony with neighbours and nature.

17375. We came together in response to creeping urbanization to build a positive example of medium-density housing. Our homes are clustered to preserve precious agricultural land.

17376. But finding this land was not easy. Agricultural land has become scarce and expensive. The City of Chilliwack saw our plans for a respectful approach to the region's dwindling agricultural land. It changed the rules, creating Canada's first ecovillage zoning.

17377. We were uneasy about the existing pipeline running under our future farmland, but we had little choice. We are farmers and community builders.

17378. At the turn of the millennium, we knew little of diluted bitumen and pipelines, but like so many, we've had to learn. And the more we have learned of the project, the less comfortable we have felt. The risk from the existing pipeline, which carried crude for local use when we started working the land is greatly increased by the project and the volumes of diluted bitumen it would transport. It clashes with what unites us as a community.

17379. And we're not alone in this vision. We're part of a global trend of intentional sustainable communities. Researchers Dale, Ling, and Newman looked at 35 sustainable communities like ours. They concluded that these places build up:

> *"...resilience to weather social, economic, and environmental change, and also provide a site for innovation where problems can be addressed iteratively with a process-based approach through the active engagement of diverse social actors. Community vitality, however, has been badly damaged in the*

> *industrial world by the suburbanization of the second half of the twentieth century."*

17380. And that is on page 5 in our January 12th submission.

17381. A hundred (100) of us live on 5 acres; many of us farm the other 20. Installing the pipeline would impact 50 percent of our agricultural land. That is 1.91 hectares, just under 5 acres, which is the right-of-way of safety zone mandated by the NEB.

17382. Additionally, construction would render 2.125 hectares, a little more than five-plus acres, unreachable because the farmers would have to go across the construction zone in order to be able to farm their land and also to irrigate it.

17383. The Ecovillage retained Dr. Newman and Dr. Powell to review the impacts of the project on Yarrow Ecovillage. They make it clear that building organic soil health is a key component of organic farming, which is fundamentally different from conventional farming.

17384. As described by Birkhofer et al in 2008, based on the 20-plus-year study:

> *"Long-term organic farming and the application of farmyard manure promoted soil quality, microbial biomass and fostered natural enemies and ecosystem engineers, suggesting enhanced nutrient cycling and pest control."*

17385. As demonstrated in an extensive review of literature by Gomiero et al. in 2008, organic farming systems both depend on and contribute to soil quality through, for example, both benefitting from and fostering organisms in and above the soil, which help preserve soil fertility as they recycle organic material and provide biocontrol for pathogens and pests.

17386. Last year, Trans Mountain Expansion Project representatives and experts visited us. They assured us that soil would be removed with care. Layers would be excavated, segregated, and put back in sequence after construction.

17387. Through our labours, we have learned how fragile soil is, how careful one needs to be in nurturing and cultivating it. We spent thousands of hours building it up, cover-cropping, adding manures, spreading compost, and just

caring for the soil. We practice low-till agriculture where we disturb the soil as little as possible.

17388. While Kinder Morgan has proposed mitigation measures, these are not specific to organic production and will not protect the soil quality of the Ecovillage.

17389. As stated by Doctors Newman and Powell, even if the soil is removed in layers, this removal will disturb the subsurface and surface soil organisms and the structure they depend on, thus reducing the soil quality, and hence its fertility and ability to provide biocontrol against pests and pathogens.

17390. Soil moisture will be affected, and exposure to light will impact a subsection of soil microorganisms. Any disruptions of organic farmland for pipeline construction will be severely detrimental to that land's quality and capacity for organic production. And that's on page 14 of our January 12th submission.

17391. As described by soil scientist Professor Deborah Allan in her testimony on the application, "To Root an Oil Pipeline Through an Organic Farm in Minnesota":

> *"Wherever digging or trenching is done, construction of a crude oil pipeline would remove and disrupt the A horizon soils which are the organic farmer's bank account. Even if this soil was segregated and an effort was made to physically replace this topsoil layer, the stratification of organic soils (with the especially organic matter rich soil in the top several inches) would be destroyed. Organic topsoil health could only be restored over years of rebuilding. If soil horizons were mixed in the construction process, [it's] not certain that soil quality could ever be effectively restored."*

17392. Minnesota Office of Administrative Hearings, 2006. And again, this is attached to our January 12th submission.

17393. Soil disruption will in turn impact the way of life of the organic farmers who work the land and earn their livelihood by taking their product to market.

17394. When we walk the fields, we're careful always to step on a small path. Large pipeline construction machines cannot be as cautious, and soil compaction would add to the affected area.

17395. Our farmland has been certified organic since 2004 by the B.C. Association for Regenerative Agriculture. We sell produce at farmers' markets and to locals who don't farm, some 60 organic varieties. Certification assures customers that we adhere to production standards for growing, storage, processing, and transportation.

17396. Certification means no synthetic fertilizers or pesticides, antibiotics, food additives, irradiation, or GMOs. It stipulates environmentally respectful practices. Farmland must be free from contamination for several years. We are audited and inspected annually.

17397. Organic certification is the bedrock of our business. It's the basis on which our customers trust and choose our produce. Without it, the raison d'être of our community and the value in what we have built will vanish. Through construction or malfunction, the Trans Mountain Expansion Project could imperil this certification on much or all of our farmland.

17398. Our reputation would also suffer. The Ecovillage Farm has been building its brand for close to 15 years. Clients know that our produce is of superior quality. The public perception of the tar sands will surely leak and spill over our reputation, harming our business. Regardless of the environmental effects, our customers are buying an idea to lower their own impact on the planet. Our practice and vision couldn't be more different than that of the fossil fuel industry.

17399. If this Panel recommends the project as proposed, it will impact our brand, associating big oil and Ecovillage organic veggies in the mind of those who shop at farmers' markets. Our reputation would be contaminated, but the impacts would also be intimately personal.

17400. Construction would halt farming activity for all the farmers. Some wouldn't be able to access or irrigate their fields during the construction. Others would not be able to irrigate. All 11 of the farmers would be affected by disruptions to the natural biological controls that are part of the shelter belts and the riparian zone.

17401. In 2014, a study by Shi found heavy metals like cadmium, copper, nickel, and lead had contaminated soil and pipeline right-of-way construction sites. Such contamination could again affect our organic certification. Our farmers wouldn't feel safe working in soil that may be contaminated, and even the perception of contamination can affect our reputation.

17402. Canada's National Organic Standards requires any construction areas to be fully segregated by erecting a shelter belt; that is, a swath of eight metres separating growing space from land that has been affected. This takes yet more land out of production.

17403. We also worry about our safety and that of our families. Three dozen children live at Yarrow Ecovillage; they have the run of the place, freedom to roam and explore outside, not hardwired to videogame controllers. That's one reason why young families move there.

17404. This playground would be transformed into a dangerous work site. Pipeline installation would occur immediately next to the farmers' workplace; that is, the fields, and less than 500 metres from our homes. We've heard how leaks can go undetected for weeks even in new pipelines, or larger ruptures have taken hours to shut down.

17405. Our darkest fears are of a serious pipeline breach. Oil would spread out, finding its way into our soil, water supply, and into Stewart Creek. Through great efforts we rehabilitated the creek, removing invasive, non-native flora, and nurturing the fish-bearing habitat back to productivity.

17406. A spill would end our business. It may require evacuation. It could kill the animals and crops. We live uneasily with this risk every day. We ask you not to compound it.

17407. Our information request, May 2014, asked Kinder Morgan about safety and emergency preparedness. We got a vague and dismissive reply.

17408. We are concerned about the information for first responders. When we asked for details about substances spilled, the Proponent claimed propriety information. To us it seems company secrets trump public safety.

17409. The Proponent needs to provide detailed chemical profiles of any substances that might be spilled in the event of a rupture and thereby prepare local

first responders with the ability to deal with spills.

17410. Before concluding, I would like to extend an invitation to the Board to come and visit the Yarrow Ecovillage and Farm whenever they wish.

17411. And this is my conclusion. This project has cast a shadow across our community for the past few years. I've been worried throughout this review. At night, I wake up suddenly, frightened for what will happen.

17412. I appear before you today as a layperson. I've worked the land that I speak about. The Panel process is alien to me, but I come with deep knowledge of our little patch, the soil, and the people of my community. We will be affected because installing the pipeline would cause ongoing impacts to the organic soil quality, and possibly contamination.

17413. The reputation of the farm, its farmers in Ecovillage will suffer. Organic certification would be denied, ending the business. Construction will remove 50 percent of our land from production, affecting farmers' livelihoods. Construction, operation accidents, and malfunctions can impact the health and safety of the farmers, residents, and children due to close proximity of our homes.

17414. A serious pipeline rupture would require evacuation of the community. Crops, animals, residents, and our business would be significantly impacted.

17415. We are a small voice here, but I stand in solidarity with the Tsleil-Waututh Nation and other intervenors. The Ecovillage is trying to embody the sustainable low-carbon future that Canada's new government is now championing. Addressing climate change needs a variety of solutions and creative approaches. Our community is one of them.

17416. The price of oil is heading towards $20 a barrel, and the dollar is falling. As commodities crash, food prices are spiking in Canada. The instability of the global economy makes our farm and the food we produce all the more valuable.

17417. This project is built to transport a dangerous commodity whose day may soon be over, but the organic farmer has never been more needed.

17418. I thank you.

17419. **THE CHAIRMAN:** Thank you. The Board do have some questions of you, Ms. Hale. Perhaps Mr. Davies will go first.

17420. **MEMBER DAVIES:** What I'd like to explore is just to get a better understanding of what you would, as a landowner and as an operation that wanted to maintain its organic status, after the pipeline -- if it were approved and built, after it was constructed and the land or the soil was put back in, what would you be faced with in terms of securing certification again if you wanted to grow crops over that portion that had been disrupted?

17421. **MS. SUZANNE HALE:** Well, Mr. Davies, as I speak for a group of farmers, I would like to discuss that with them, and bring the question to them and get their answer.

17422. **MEMBER DAVIES:** Oh, I'm sorry. Yeah.

17423. **MS. SUZANNE HALE:** Would that be acceptable to you?

17424. **MEMBER DAVIES:** Absolutely. I'll leave the question with you, if that's okay.

17425. And I'm not soliciting new evidence; I just want to make sure that we understand that.

17426. The other thing that struck me was the eight-metre segregation zone that you mentioned, whereby the growing lands have to be offset by an eight-metre strip from the construction activity.

17427. How long would that segregation zone be in effect? Would it be relaxed when the construction was finished?

17428. **MS. SUZANNE HALE:** That's a forever kind of metre that we're measuring. They look at -- when they do the annual evaluation, they look at whether the land that's growing vegetables is segregated from land that may be made inoperable by an eight-metre zone.

17429. **MEMBER DAVIES:** Thank you very much.

17430. **THE CHAIRMAN:** In your written argument, and also in your comments, I was drawn to -- on page 17 where you say, *"As noted in the*

above..." -- and you're talking about organic certification branding and marketing. It's sort of in your summary, that:

> *"...organic production is a holistic system designed to optimize the productivity and fitness of diverse communities within the agro-ecosystem, including soil organisms, plants, livestock and people. The principal goal of organic production is to develop enterprises that are sustainable and harmonious with the environment."*

17431. In reading that and in your comments on the soil disturbance -- and I'm getting there if you'll allow me to try and organize my thoughts for you. And I noted your comments from Professor Allan on, you know, you can remove the soil, segregate it, but you're not -- you're dealing with the stratification which you can't deal with if the pipeline was going to be built and they were to remove the soil.

17432. Are you aware of any, within Canada or maybe United States and in Europe, Professor Allan, are there any regulatory bodies? Are there any examples of how this has been done and is there standards to be met that would allow -- particularly to organic farming and removal of soil; are you aware of anything? And it may be in your evidence, which I tried to find and I'm looking for it still.

17433. **MS. SUZANNE HALE:** I'm not specifically aware of anything that talks of the specifics about soil. But the Minnesota Public Utilities Commission did determine that -- and the ITC Midwest LCC Agricultural Impact Mitigation Plan mentions that the soil has to be protected.

17434. **THE CHAIRMAN:** Take the time necessary to -- we have the time. Take the time.

17435. **MS. SUZANNE HALE:** Well, all of the information that I referred to is in the January 12th submission and attachments.

17436. **THE CHAIRMAN:** I'll allow Ms. Scott to ask her question because I'm trying to formulate my next question.

17437. Thank you.

17438. **MEMBER SCOTT:** In your submissions this morning, you advised

us that the condition on soil remediation and treatment of soil during construction as proposed is inadequate, or it's not specific to at least organic farming practices.

17439. The proposed conditions are draft at this stage and it's possible that they may change prior to a final decision.

17440. I wonder if you have any advice for us about how we could specifically address the needs of organic farming in our conditions. Do you have any suggestions about how we might accomplish that, other than adopting the Minnesota decision?

17441. **MS. SUZANNE HALE:** Well, it simply is not possible to reinstall moisture into the soil once it's escaped. It's the layering that is proposed is not a solution to removal of soil, for an organic farmer. It just takes too much time, too much energy and too much work to ensure that the soil is productive.

17442. And so if by removing the soil -- and the Proponent has suggested that it would be replaced in the same order. Well, that's fine for the Proponent but it's not fine for the organic farmer because it doesn't -- it would not retain its moisture. It wouldn't retain its viability as a certified organic soil.

17443. **MEMBER SCOTT:** So am I understanding you correctly, then; there is absolutely no circumstance under which the construction can take place on an organic farm ---

17444. **MS. SUZANNE HALE:** That's right.

17445. **MEMBER SCOTT:** --- and maintain certification? And it's not a matter of consultation or adopting different best practices in terms of construction practices and remediation; it's an absolute limitation in -- to organic farmers?

17446. **MS. SUZANNE HALE:** Well, I think your word "limitation" is well chosen because it definitely is a limitation. There is nothing that can be done once the soil is removed. It can't be remediated.

17447. **MEMBER SCOTT:** Thank you.

17448. **THE CHAIRMAN:** I think Ms. Scott had got to my question. And now, to be quite clear, you know, that we have to recommend conditions whether we're recommending approval or not of the project -- I want to make that quite

clear. We're just fulfilling our mandate to do that and to better understand what your position is on this.

17449. And my understanding is that -- as you replied to Ms. Scott, that complete avoidance of construction on the -- on your farms is what you are recommending because there's no viable -- there's not solution to removal of the earth of organic farm and there would be a loss of your potential licence or approval under the Canadian standards.

17450. **MS. SUZANNE HALE:** You're quite right. And I don't mean to be categoric and say that there's no way for anything, but the removal of soil just cannot take place the way it has been told to us can take place and still be viable.

17451. **THE CHAIRMAN:** Sorry, you have a further response?

17452. **MS. SUZANNE HALE:** I just wanted to mention that one of the ideas to address this problem would be to truck in new organic soil. That was suggested to Kinder Morgan and Kinder Morgan simply indicated to us that it was too expensive.

17453. **THE CHAIRMAN:** Thank you.

17454. Ms. Scott has a follow-up question.

17455. **MEMBER SCOTT:** You didn't mention it in your submissions this morning, but in your written submissions you talk about water interruption and the consequences to Yarrow. I wondered if you had any advice for us about conditions that might be necessary to address the water concerns that you outlined in your written submission.

17456. **MS. SUZANNE HALE:** I don't know if you're referring to the wetlands, which I had talked about initially. We've been advised that the wetlands would not be imperilled.

17457. **MEMBER SCOTT:** Thank you.

17458. **THE CHAIRMAN:** With that, the Board thanks you, Ms. Hale, for your presentation and your responses from -- on behalf of the farmers and the people in Yarrow Ecovillage. And we will be taking it into consideration with all

of the other evidence that you have placed in front of us as we make our determination on this matter.

17459. The Board have been advised that the Lower Nicola First Nation will not be presenting today, as they were now on the list for after Yarrow Ecovillage.

17460. So with that, we are adjourned until 1:30 to hear from Grasslands Conservation Council of British Columbia.

--- Upon adjourning at 10:19 a.m./L'audience est ajournée à 10h19
--- Upon resuming at 1:31 p.m./L'audience est reprise à 13h31

17461. **THE CHAIRMAN:** Good afternoon, and welcome to this afternoon session in Burnaby, which is part of the National Energy Board's hearing regarding the Trans Mountain Expansion Project.

17462. We will continue to hear oral summary -- intervenor oral summary argument.

17463. My name is David Hamilton and 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 Trans Mountain's Expansion Project.

17464. One important housekeeping matter. In the event that we hear a hotel fire alarm, the procedure will be to exit the hearing room using the entrance that you came in. Once you are outside the hearing room, there are two evacuation routes. The first is directly to your left when you exit the hearing room doors, and the second is located beside the registration desk where some of you received your lanyard. Uniformed security guards will be at both locations to facilitate your exit. Please follow their instructions.

17465. Once outside the building, proceed to the hotel muster point located on the northwest corner of the Delta Burnaby Hotel and Conference Centre property where Sumner Avenue and Manor Street intersect. At the hotel muster point, please ensure all members of your party are accounted for and await further instructions.

17466. I think presenters are briefed on our timing system for your 40 minutes to present your oral summary argument.

17467. And this afternoon we will be hearing first from Grasslands Conservation Council of British Columbia, followed by the Cowichan Tribes, then by North Slope No Pipeline Expansion Society.

17468. And I think, for the record, I'd ask Trans Mountain to introduce themselves to our presenters today.

17469. **MS. OLENIUK:** Good afternoon. My name is Terri-Lee Oleniuk and I'm counsel to Trans Mountain. With me to my left is Lesley Matthews and she's the regulatory lead for the project.

17470. **THE CHAIRMAN:** And with that, I think we're ready to hear from -- the oral summary argument from the Grasslands Conservation Council of British Columbia. And we have read all your argument and all the evidence that you have filed on this proceeding, so we are pleased to receive your oral summary argument.

--- FINAL ARGUMENT BY/ARGUMENTATION FINALE PAR GRASSLANDS CONSERVATION COUNCIL OF BRITISH COLUMBIA:

17471. **MR. BENTON**: Thank you, and good afternoon. I'd like to thank the Board for this opportunity to present our oral argument.

17472. My name is Scott Benton. I'm the executive director for the Grasslands Council of British Columbia.

17473. The Grasslands Conservation Council of B.C. is a non-profit charitable society dedicated to the education, outreach, stewardship, and conservation for the benefit of the province's grasslands and the communities that are dependent upon them.

17474. The Grasslands Conservation Council represents a range of interests including ranchers, professionals, conversationalists, recreationalists and many individuals who value and enjoy the province's grasslands.

17475. Contrary to some media reporting, the Grasslands Conservation Council is not opposed to the twinning of this pipeline. What we are seeking, should the project be approved, is a requirement for improved mitigation and restoration standards, along with fair compensation above what's being currently

proposed in the application.

17476. Should this project meet the NEB criteria for approval, the Grasslands Conservation Council is requesting that the National Energy Board reduce the environmental risks that we see in the application at present through the disturbance of natural grasslands by adopting the Province of B.C.'s mitigation policy requirements into the project final conditions.

17477. The final conditions should include explicit language specifying outcomes that require route selection; that demonstrates avoidance of natural grasslands and wetlands wherever possible; that mitigation objectives and prescriptions will result in minimal footprint impacts in natural grassland areas; that restoration outcomes for natural grasslands be specified as like for like; and restoration timeframes should be for 25 years as opposed the five that's currently proposed in the application.

17478. Finally, in offsets for -- establishing offsets for lack -- or for loss of natural resource values, we believe that they should be on a two-to-one basis with equivalent habitat characteristics.

17479. I'd like to give you a little bit of background on the grassland ecology of the area that I'm talking about. On the map in front of you, the area runs from Black Pines through to Kingsvale.

17480. In 2004, the Province of B.C. formally recognized the grasslands in this area and in the Okanagan Valley as endangered. Grasslands occupy just .8 of B.C.'s land base and yet they provide the habitat for over 30 percent of the species at risk, while providing low-cost/high value forage for the ranching industry.

17481. The low-, mid- and high-elevation grasslands contain grass species that are found nowhere else in Canada. These grasslands are in a semi-arid ecological system which is dominated by bunchgrass, shrubs, and forbs.

17482. The Thompson, Nicola, and Okanagan Valleys experience some of Canada's most extreme climatic conditions with high heat and very low precipitation creating severe growing conditions. That is why grass grows here.

17483. Soil disturbance, land conversion and invasive plants are the prime contributors to the continued loss of native grasslands in British Columbia. The

soils are typically very thin and fragile, and disturbance can easily lead to rapid erosion and spread of noxious weeds. Recovery time for native species from significant disturbance can take up to 50 years or more depending on the site conditions.

17484. Once established, invasive plants require annual management and treatment. They do not stop spreading after five years; they're with us forever. Invasive plants can establish themselves in undisturbed areas once they've taken a foothold in disturbed areas.

17485. Continual disturbances or changes in habitat can displace or extirpate native species in a very short period of time. Linear corridors are one of the primary continuous distribution networks for invasive plants in this province.

17486. So now I'd like to move to our comments on avoidance mitigation and restoration.

17487. The Trans Mountain application understates the environmental impacts to grasslands, both in damaged caused, in time to recover, and the risk and treatments associated with invasive plant management; and lacks, from our perspective, a firm commitment to restore the habitat to its original condition.

17488. Project mitigation should reflect the sensitivity of the grassland ecology in this region. Trans Mountain's application falls short in this regard given the route selection preferences through a grasslands protected area; the lack of a firm commitment to restoration of native species; a short-term commitment to invasive plant control; the size of the construction footprint impacts through native grasslands; the timing windows proposed -- it goes on.

17489. Grasslands need to be afforded the equivalent level of mitigation and restoration that is required for wetlands. They have equivalent levels of ecological sensitivity and importance. The final conditions need to reflect this.

17490. Trans Mountain is proposing to commit to invasive plant control for five years when the reality is utility corridors they require treatment for the life of the infrastructure. Maintenance crews and inappropriate recreational use on utility corridors are some of the prime vectors for continual introduction of invasive plants. Invasive plants on the current pipeline right-of-way are a continual source of management problems for private landowners and for the government.

17491. The draft National Energy Board management conditions are inadequate to minimize impacts or restore grassland habitat. The National Energy Board conditions for invasive plant control and habitat replacement should be in place over the life of the infrastructure, given that the corridor will be under continual disturbance. Draft condition No. 53 should be amended to require this.

17492. The National Energy Board should also establish a condition requiring Trans Mountain to follow the Province's mitigation hierarchy to minimize the construction footprint through natural grasslands and restore them to original condition.

17493. The Grasslands Council supports the National Energy Board draft conditions No. 49 and -- 149 and 150, and encourages the Board to establish the additional conditions referenced above to address the mitigation and restoration requirements for grasslands in this region.

17494. I want to move now to route selection.

17495. The *National Energy Board Act*, section 75 requires a pipeline company to do as little damage as possible. Trans Mountain's favoured route through the west-side area above Kamloops maximizes the environment damage to grasslands by creating increased habitat fragmentation, removing grasslands vegetation, will result in continual introduction of more invasive plants into a protected area that would surround it, and ignores the provincial government's recognition of endangered grasslands habitat and pre-empts a publically supported provincial land-use decision to protect these grasslands.

17496. The route alignment through Lac du Bois avoids social impacts and minimizes construction costs at the expense of the environment. The company's comparison table fails to reference that grasslands are an endangered ecological type in B.C. and underestimates both the time and difficulty of recovering them.

17497. There are two other possible routes that pass through the previously disturbed areas. One route is already approved for pipeline use and contains a pipeline that's not being used. The Grasslands Conservation Council suggests that the alternate route through west-side be considered if there too many encroachments to make use of the approved right-of-way at this time.

17498. Should the National Energy Board approve the route through Lac du

Bois, a condition needs to be established requiring Trans Mountain to provide offsets and compensation for lost land and natural asset replacement costs in this habitat type.

17499. Compensation should be at a minimum ratio of 2 to 1 which is consistent with the Province's past practice for protected areas. Ongoing increased management cost to the Province and private landowners for right-of-way interactions such as trespass enforcement, invasive plant management, loss of productivity, et cetera, should be 100 percent the life of the infrastructure.

17500. Now, speaking to species at risk, there are a minimum of 15 federally-listed species dependant on grassland habitat in the Kamloops and Merit sub-regions. There are many more species and ecological systems listed provincially for the same geographic area as noted in the Province's Conservation Data Centre.

17501. Using the federal Species at Risk listing as a threshold for protecting sensitive species in the southern interior grassland is too coarse a filter which risks impacting on and elevating other species towards getting listed federally.

17502. The construction of the pipeline will create short-term landscape fragmentation and potentially create localized circumstances for long-term fragmentation.

17503. The habitat elimination, depending on native plant recovery -- this will increase risk to all species dependant on native grasslands in those areas where that occurs.

17504. The National Energy Board should amend draft condition 78 to reference the B.C. Conservation Data Centre listings to reduce the risk of adding more species to the Federal Species at Risk List.

17505. So I'd like to now speak to some possible solutions to minimize impacts.

17506. So we support the concept of using existing pipeline routes wherever feasible. In the case of grasslands, we believe environmental considerations should supersede economic in native grasslands habitat. The objective is to avoid increasing fragmentation by creating new rights-of-way.

17507. We believe that the construction footprint can be minimized not just in Lac du Bois as being suggested, but throughout the route that the pipeline follows through the natural grasslands by reducing the width of the right-of-way and minimizing the size and number of roadways and vehicles used in grasslands using smaller gauge equipment.

17508. We believe that there needs to be an effort to minimize the length of time the trench is left open and non-vegetated and the time that soils are left stockpiled. We want to ensure that native vegetation is established on the site as soon as possible using local native plant stock.

17509. We want to see long-term vehicle control requirements for managing invasive plants and inappropriate off-road vehicle use. The most effective way to control invasive plants is not to allow them to establish in the first place, and that means not disturbing soil or minimizing soil disturbance. Similarly with access, not creating an access is the most effective way of managing it.

17510. Establishing restoration objectives and targets for ecological and visual integrity that reflect the sensitivity of the grasslands in the final conditions will go a long way to achieve these objectives. We believe that the time period for restoration, as we stated previously, needs to be extended to 25 years or alternately create to free-to-grow standard for native species of grasslands.

17511. The final condition should also establish a native species end-state objective, which specifically references establishing species from seed obtained on-site. And we recognize some of this work has already begun. But there needs to be much more.

17512. By properly timing the disturbance and re-vegetation within the plant communities through re-contouring of the natural landscape to minimize the visual impact, committing to near restoration standards of rehabilitation on both the rights-of-way and access routes, and where there are sagebrush and rabbit brush occurring, equivalent shrub cover must be replaced.

17513. Final comments speak to compensation for impacts. Final conditions should require compensation for resource agencies, private interests, and non-government organizations whose interest are directly affected by this project.

17514. I've already spoken to what we think is fair compensation for Lac du Bois should the route decision take the pipeline through that area. And I refer you

to section 77 of the *Energy Board Act*:

> *"Where lands [...] vested in Her Majesty for a special purpose, or subject to a trust, the compensation money that the company pays [...] shall be held [in trust by the Governor General in Council]."*

17515. Secondary we'd like you to focus on is providing practical grazing options during construction and rehabilitation of the rights-of-ways and roads. That needs to be done in close consultation with land owners, government staff, range users, and other groups who use Crown range.

17516. Finally, the costs for additional enforcement monitoring and basic plant control, community education that all result from this project, need to be 100 percent compensated, for the province nor private land owners, have the resources to do this. And it won't get done unless it's paid for.

17517. And that concludes my presentation. Thank you.

17518. **THE CHAIRMAN:** Thank you, Mr. Benton. One second, please.

--- (A short pause/Courte pause)

17519. **THE CHAIRMAN:** If you'll entertain some questions, Mr. Benton, from the Panel, Mr. Davies will start.

17520. **MEMBER DAVIES:** It's just a termed you used I was wondering about. You used something such as 'free to grow standard'. Would you mind explaining that to me?

17521. **MR. BENTON:** It's a term that's used in the forest industry for reforestation activities and I just coined it here. It's a condition that the trees or plants need to be in prior to a company meeting its silvicultural objectives for restoring trees back on the landscape after they've finished harvesting.

17522. So there isn't such a thing that I'm aware of in the agrology community, but perhaps there should.

17523. **MEMBER DAVIES:** And how would that apply here practically? What would it mean in terms of potentially any draft conditions that we might

impose?

17524. **MR. BENTON:** What it would do if the standard was established -- it would remove a specific timeframe for natural grassland species to be re-established on a site. It would be essentially a scientific measurement of how well that plant is doing on the landscape and saying, "It is now able to survive on its own" versus saying, "After five years if it's not there then you're done anyways because that's what I'm required to do under the terms of the Agreement."

17525. **MEMBER DAVIES:** Thank you very much. That helps.

17526. **THE CHAIRMAN:** Mr. Benton, perhaps you could help me on your comment on the -- that the draft conditions ignored the B.C. Conservation Data Centre Species Listing.

17527. What is the extent of that data centre's basing? Is that throughout the whole province? And does that list the species at risk or species or whatever within the province?

17528. **MR. BENTON:** Yeah. The B.C. Conservation Data Centre has their own Species at Risk Listing criteria. It encompasses all of the federal species but it goes deeper than that. So it looks at species that are unique to this province and ranks their condition in terms of both habitat as well as population health and how it's managed over time.

17529. So it's a parallel species listing and there are many more species listed on that list than on the federal list.

17530. **THE CHAIRMAN:** And your evidence is that list at all is not being considered, is not part of our -- and you should be -- in particular to the Lac du Bois Provincial Park, is there species in there that are listed that are not in the federal Species at Risk ---

17531. **MR. BENTON:** Sorry. I would have to go look at the maps to see. That data is available online to anybody that wants to look at it. It will give you either an indication that there's a species at risk there. If it's at high-risk, it won't name it and it won't give a precise location; it will give a general geographic area much like the federal.

17532. But it is safe to say there are many more species on that list in the grasslands than what is federally listed.

17533. **THE CHAIRMAN:** And your submission is that it's important that the Applicant and the Board see that to be able to mitigate anything that they may recommend?

17534. **MR. BENTON:** It would substantially reduce the risk if the Applicant were looking for those species when they're working in the area and doing whatever measures they need to take to avoid disturbing them.

17535. **THE CHAIRMAN**: On behalf of the Board, we would like to thank you for your evidence and for your attendance today and your submissions. Thank you.

17536. We'll take a short recess and then we'll be hearing from the Cowichan Tribes.

--- Upon recessing at 1:54 p.m./L'audience est suspendue à 13h54
--- Upon resuming at 2:10 p.m./L'audience est reprise à 14h10

17537. **THE CHAIRMAN**: Good afternoon, Ms. Morgan, on behalf of the Cowichan Tribes. The Panel are receiving your oral summary argument. We have read your submissions and everything that the Cowichan Tribes have submitted in evidence. So we would be pleased to receive your oral summary argument.

--- FINAL ARGUMENT BY/ARGUMENT FINALE PAR THE COWICHAN TRIBES:

17538. **MS. MORGAN**: Thank you. The Cowichan Tribes is B.C.'s largest First Nations community. It has reserves located on the southeast Vancouver Island along the Cowichan River and the Cowichan Bay.

17539. The Cowichan Tribes are amongst the descendants of the historic Cowichan people, whose traditional territory extends from Vancouver Island and the southern Gulf Islands across the Georgia Strait and into the south arm of the lower Fraser River. The Cowichan Tribes have Aboriginal fishing and harvesting rights throughout this traditional territory.

17540. The Cowichans specifically claim title to the historic village at Tl'uqtinus, which is located along the Fraser River just downstream from the proposed pipeline crossing that's at issue in the application.

17541. Given this geographical focus, needless to say the Cowichan Tribes Aboriginal and title rights could be significantly impacted by the proposed project, which is why they participated in this process to make their views known to the Crown.

17542. The Cowichan Tribes rights will be directly and negatively impacted not only from marine shipping but also from the risks associated with the Fraser River pipeline crossing.

17543. These matters, as you know, are reviewed in the Cowichan Tribes written submissions in more detail, I promise, than I will be addressing here.

17544. The Cowichan Tribes agrees with the many intervenors who have addressed the inadequacy of consultation and accommodation to date, but that, I promise, is not the focus of today's submissions. Instead, we want to focus today on why the NEB should reject Trans Mountain's application, even under the *NEB Act* because it is not in the public interest.

17545. The NEB has acknowledged that the public interest will change as society's values do. I am quoting from a previous decision of the Board:

> *"The public interest is inclusive of all Canadians and refers to a balance of economic, environmental, and social interests that change as society's values and preferences change over time. As a regulator, the Board must estimate the public good a project may weigh and its potential negative aspects, weigh its various impacts, and make a decision."*

17546. I submit that the Canadian values have evolved in the time since the NEB described its mandate 10 years ago and environmental protection, in recognition of Aboriginal rights, are no longer matters of merely local concern. They are fundamentally Canadian values that must be respected.

17547. To that extent, today I want to focus on a few things here: first, why economic benefits arising from oil sands production should be irrelevant to your

considerations; how Trans Mountain has failed to properly consider the risk and effects of a marine tanker spill; why this project should not proceed without a verifiably improved marine spill response regime; and the particular conditions that the Cowichan Tribes requires if this project is approved to at least mitigate the impacts that the project will have on its Aboriginal rights.

17548. Turning to the first point. In its final argument, Trans Mountain relies on the economic benefits to upstream oil sands producers and the associated tax revenues that will accrue, to justify the project as being in the public interest.

17549. But given the Board's earlier rulings, the benefits to and arising from upstream oil sands production are not something that should factor into the Board's public interest consideration in the way that Trans Mountain proposes.

17550. In 2014, Vancouver applied to have the environmental effects of oil sands production considered as part of this review. The Cowichan Tribes supported that application and specifically asked that the effects of global warming on Fraser River sockeye and the Aboriginal right to fish be considered.

17551. The Board ruled that it would not consider the consequences of oil sands development in this process. In doing so, the Board held that upstream effects would be considered only to allow the Board to assess the availability of oil to the pipeline.

17552. We're good?

17553. I just want to go back to the key point that you guys made in 2014, which is that upstream effects would only be considered to allow the Board to assess the availability of oil to the pipeline and the economic feasibility of the pipeline.

17554. And specifically, the Board stated that it would be inappropriate to consider, and I quote,

> *"One cost or benefit of upstream or downstream activities in isolation of other costs or benefits."*

17555. But that is exactly what Trans Mountain is now asking you to do here. By identifying the benefits to upstream producers and the knock-on effects arising from those benefits, Trans Mountain is adducing evidence about the benefit of

upstream activities without also considering the environmental costs associated with them.

17556. This type of evidence is precluded, based on the Board's Ruling No. 25, we submit, and it would be unreasonable for the Board to consider it for anything other than the fact that the pipeline would be used.

17557. As a result, in weighing the benefits against potential impacts and negative consequences, the benefits are not as significant as Trans Mountain asserts, and the Cowichan Tribes relies on the evidence that's been introduced by a number of the intervenors in this process and to that point.

17558. And now turning to the burdens associated with this project.

17559. The risks and effects associated with a marine tanker spill need to be addressed. I am sure you've heard a lot about this already, but I do want you to -- to direct you to the evidence that the Cowichan Tribes has filed on these points.

17560. Trans Mountain's application rests on its conclusion that the risk of a tanker spill is very low and this has to be challenged on two fronts: first, the risk is not as low as Trans Mountain contends; and second, the risk doesn't have to be high to matter so long as the risk is real and the potential impacts are serious.

17561. In support of its application, Trans Mountain filed a report that concluded the project would increase the risk of a spill by 6 times, but that mitigation measures could reduce that increase in risk to 23 percent. So there's an increase in risk, even on Trans Mountain's evidence.

17562. But much of the evidence or the analysis that they rely on is based on proprietary data that the intervenors have not been permitted to fully access, and on assumptions that have not been fully disclosed.

17563. To consider this evidence -- at least the evidence that is available to consider -- the Cowichan Tribes retained Glosten Associates, who are experts in risk modelling. The supervising authors are PhDs with expertise in marine vessel traffic risk assessments.

17564. The Cowichan Tribes filed the Glosten report in these proceedings. It's authored by Dr. Kirtley and its conclusions are important to review.

17565. The authors point out that Trans Mountain's modelling is based on North Sea conditions. The National Research Council has reviewed this modelling and it's concluded that these conditions cannot be assumed to apply to other regions. The findings are particularly location-dependent.

17566. While Trans Mountain made adjustments to account for local conditions, these adjustments both introduce uncertainties and reduce transparency.

17567. And the experts conclude that in terms of risk reduction methods that have been proposed by Trans Mountain, their effectiveness can only be a function of their assumptions and the transparency -- the lack of transparency prevents their examination. But what we can tell is that the effect is likely overstated.

17568. Dr. Kirtley concludes that there is a high level of uncertainty in the model. There can be little confidence in the results.

17569. She further concludes that Trans Mountain has failed to adduce evidence supporting its conclusion that oil cargo spill risk in the region will remain similar and comparable with current conditions.

17570. There is no technical basis for Trans Mountain's conclusion that the risk of a spill would not increase. And as other evidence in this proceeding has shown, the risk is real and it's not merely hypothetical. But nonetheless, Trans Mountain relies on its conclusion throughout its application to justify limited study and analysis.

17571. Trans Mountain's logic is that if an oil spill is only a possibility, then it should not be seriously weighted. But even if there was a limited likelihood that the risk would materialize, that shouldn't end the discussion.

17572. Tolerance for risk of course goes down the more serious the consequences, so we need to know what the consequences are. Trans Mountain doesn't fully assess them, but there is significant evidence before this Board filed by other intervenors in this hearing that the consequences would be serious. They could have a devastating impact on Aboriginal rights, and these consequences must factor into the public interest analysis.

17573. Turning then to consequences. The Cowichan Tribes retained Stafford Reid and Dr. Hatfield to review Trans Mountain's assessment of what would

happen in the event of a marine tanker spill. They have concluded that Trans Mountain has not adequately considered how bitumen-based crude oils will respond in Salish Sea conditions and impact the environment.

17574. Trans Mountain has not considered how the chemical content of the spilled substances could affect the response. And finally, Trans Mountain has not provided spill trajectory modelling that anticipates oil behaviour in all relevant areas, and in particular the Fraser River estuary plume.

17575. We see in the evidence that's been filed here that fundamentally different conclusions are reached by Trans Mountain and the expert evidence that's been adduced by the number of the intervenors here. Trans Mountain takes the most optimistic approach rather than the precautionary approach that's warranted in these circumstances, and as a result of this approach Trans Mountain's conclusions should not be relied on.

17576. Understanding the behaviour and the effect of bitumen-based crude oil within the Salish Sea environment is necessary to properly understand the risks that the project poses. This understanding has to be the foundation of any spill response regime that's developed.

17577. Stafford Reid concludes in his expert report that since Trans Mountain has failed to understand how bitumen-based will disperse and travel, there is a very low degree of confidence or certainty that the available and proposed spill mitigation measures would be adequate.

17578. We need to know now before any investment in a pipeline is made that we have a system in place to adequately respond to a spill. But when we don't fully understand what would happen in the event of a spill, we can't really assess the ability to respond to one.

17579. What we do know is that the current emergency response system isn't sufficient to deal with an emergency. The Cowichan Tribes has filed expert evidence to this effect as well.

17580. Before this project can be in the public interest, an emergency response regime must be in place that responds to risks actually faced, and where the emergency response capabilities satisfy performance measures in terms of ocean tug rescue, salvage, mechanical oil recovery, chemically hazardous situations, a trained and ready spill workforce, and oily waste management. And

again, those matters are referred to in the expert evidence filed by Stafford Reid.

17581. While there are a lot of gaps in Trans Mountain's application we do know some things. We know that risks will increase with increased traffic. We know that other proposed projects will increase in the Salish Sea, and we know that the risk of an accident is real.

17582. We also know that the substances proposed to be transported here are some of the most harmful to the environment if they're accidentally released, and we know that the release of those substances would disproportionately affect First Nations. Trans Mountain has admitted this.

17583. We also know that Trans Mountain takes no responsibility for any marine shipping accidents, and we know that Canada is not prepared to adequately respond to an event.

17584. The NEB must respond to these facts in accordance with the precautionary principle. There is no justification for the increased risks that Trans Mountain is asking all of those who rely on the health of our oceans to undertake. And there is no justification for the risks proposed to constitutionally protect the Aboriginal rights.

17585. Trans Mountain acknowledges that marine transport and safety regimes require group effort and coordination. What we need to avoid here a tragedy of the commons where no one takes responsibility and we just keep adding tankers and ships to the existing route until the worst-case scenario does materialize.

17586. We need to put a halt on further approvals involving the most dangerous and damaging substances at least until an adequate response regime can be developed. And this issue needs to be placed directly before the federal government now, understand how diluted bitumen will react in Salish Sea conditions, and develop a world-class spill response regime before these types of projects can be approved. And until that happens, this project is not in the public interest.

17587. Turning now to the final point, which is the conditions.

17588. We need to ensure that any conditions attached to this project are actually enforceable and are enforced. And in order to do that they need to be

clear and measurable, and as they stand they're not.

17589. Dr. Hatfield, the expert retained by Cowichan Tribes to review the application, notes that many of the proposed mitigation measures use non-committal wording. And he says:

> *"Vague wording makes it difficult or impossible to interpret was in intended, and therefore impossible to enforce the measures.*

17590. And the Cowichan Tribes, in its written submissions, has proposed some specific conditions to address a number of the concerns that they have raised. But the submission is that the entire set of conditions warrants a review to ensure that they are measurable, enforceable, and that the NEB is capable to follow up on those to ensure compliance.

17591. And two further conditions require specific attention to ensure that the project's effects on the Cowichan Tribes in particular are at least mitigated.

17592. The first relates to automatic identification systems. It's been proposed that commercial fishing vessels be equipped with these systems for safety reasons. These systems should also be made available to First Nations members.

17593. The shipping route that would take the tankers to Asia cuts through Cowichan traditional territory. Cowichan Tribes members regularly traverse the shipping route in exercising their Aboriginal rights to fish at the mouth of the Fraser. Measures to enhance their safety while exercising Aboriginal rights in the face of this significant tanker traffic are necessary and warranted.

17594. And the second condition I want to address with you today is one that's very important to the Cowichan Tribes, and that's the matter of deep water anchorages, and they haven't been discussed in any significant detail in the proceeding. But what happens is that the traffic that's calling at the mainland ports, the traffic tankers will often anchor at a series of deep water anchorages while they're awaiting permission to dock. And eight of these anchorages are in and around the Cowichan Bay area, and four of them are right with Cowichan Bay itself.

17595. Already the Cowichan Tribes' fishing rights are affected by the ships

that anchor there now, and now we're talking about a significant increase in that traffic. The Cowichan Tribes needs to be assured that these anchorages will not be used to manage the increased traffic associated with the project.

17596. Additional incursions into the Cowichan Tribes' traditional territory in this area can be expected to infringe the Cowichan Tribes' fishing rights and should not be permitted.

17597. To that extent, the Cowichan Tribes requests that a condition be added requiring Trans Mountain to file with the NEB proof of a marine transportation management plan that limits of the use of these deep -- eight of them -- deep water anchorages in and around Cowichan Bay by the tankers that are calling at the Westridge Marine Terminal.

17598. This accommodation is necessary to mitigate the impact of this project on the Cowichan Tribe's Aboriginal rights which will already be negatively affected if the project is approved.

17599. And with that, I conclude my submissions, subject, of course, to your questions.

17600. **THE CHAIRMAN:** Ms. Morgan, I'm picking up partly on your last comment on having Trans Mountain -- making us put a condition where Trans Mountain do something. And I noticed in -- you're quite clear in -- on page 6 of -- and citation 20, subset 28, where you talk about the Board's power to change marine shipping regulations, guidelines, or Canada's emergency response planning project.

17601. And you're strongly recommending that we try and influence -- do something that will hold -- and that is a challenge for us, as you know, as we've been going through this whole application and, if you've heard other questions, to other intervenors as well.

17602. How do we do that that will gain what you would like us achieve knowing that we have no responsibility, and then tie that into your comments earlier about conditions that are clear, measurable -- and I would add, how do we know that they're compliant, whoever's responsible to do it?

17603. So I would appreciate your -- to give us some guidance and perhaps give us something that we could consider to -- because I think reading -- and your

other -- some of your other conditions talk about comply with precautionary approaches as defined under *Canada's Ocean Act.*

17604. Take us there, if you can help us to do that.

17605. **MS. MORGAN:** I think fundamentally the number of issues that arise and concerns that exist in respect of Canada's current marine transportation system and in the -- and the regime that exist, if you can't do anything about it, you shouldn't approve the project; it's not in the public interest. So I'd start with that.

17606. But secondly, to try and figure out how you can get the jurisdiction, I believe that you have it if you just -- if you make it a condition that they file reports that produce this information in coordination with other regulatory authorities.

17607. And in terms of making sure that that's actually enforceable, you could add to the conditions something like, "Trans Mountain files this evidence and it's confirmed and evidence that it's been confirmed as appropriate by Natural Resources Canada, Fisheries and Oceans Canada, et cetera."

17608. And so those would be my submissions on that point.

17609. **THE CHAIRMAN:** And would you agree with me that the final determination on that lies with Government of Canada and the Governor in Council, that they have a greater ability to make those kind of determinations and instruct other federal bodies to do that?

17610. **MS. MORGAN:** Yes, at the end of the day, the federal government is responsible for this. What we don't want to happen is to have a report that is not clear about how far your jurisdiction or abilities go. And so what we don't want to see happen is for the issues to be ignored.

17611. So if you -- even if you just simply say, "Look, this isn't enough. It looks like there needs to be more. We have no power. We don't think it's in the public interest. And government, that makes it on you."

17612. This is a political decision at the end of the day and what we ask for are very transparent that put that pressure on the government to make that political decision.

17613. **THE CHAIRMAN:** Helpful, thank you for those -- and thank you for -- I don't -- check if my Panel mates have any -- no.

17614. Thank you for your submissions and all of the evidence that the Cowichan Tribe -- on their behalf that you have presented and they have filed.

17615. And with that, we'll take a 10-minute recess and we will return to hear from the North Shore No Pipeline Expansion Society.

17616. Thank you.

--- Upon recessing at 2:34 p.m./L'audience est suspendue à 14h34
--- Upon resuming at 2:46 p.m./L'audience est reprise à 14h46

17617. **THE CHAIRMAN:** We're now going to hear from the North Shore No Pipeline Expansion Society. And we have read all of your argument and all of the evidence you've filed and we're pleased to receive your oral summary argument.

17618. Ms. Edmonds.

--- FINAL ARGUMENT BY/ARGUMENTATION FINALE PAR THE NORTH SHORE NO PIPELINE EXPANSION SOCIETY:

17619. **MS. EDMONDS:** Good afternoon, Panel members. My name is Janice Edmonds and I'd be -- I appear here on behalf of the intervenor, North Shore No Pipeline Expansion Society. And I'll begin our submissions with a few opening remarks and then Mr. Howard, our counsel, will then use the balance of our time.

17620. I'm a registered nurse. I've had 40 years experience working in acute care as a research coordinator and as an educator. I became aware of the project about three years ago and began doing research on oil spills and the impact of these events on the people that live there.

17621. The people exposed to the spills in Kalamazoo, Michigan; Mayflower, Arkansas; Alaska; and around the Gulf of Mexico got really sick from the oil spills. I found evidence that there are long-term chronic health consequences from exposure to oil spills. Some people in Alaska have health problems now, 25

years after the exposure.

17622. I have personal experience with chemical exposures. My husband, Steve, who is in the audience here, worked as a firefighter and was exposed to benzene and other volatile organic compounds at of fire with these chemicals on site. And despite being fully outfitted with SCBA's full protective gear, he still got sick from the chemical exposure. The other firefighters are now deceased and Steve's health has been compromised now for over 20 years.

17623. I am passionately interested in this project and the impact that it will have on the people in my community and the people that will be affected by pipeline spills and oil spills all along the tanker route. I made a decision that I needed to take action. I learned as much as I could about the project, pipelines and tankers. There were no public information meetings put on by Trans Mountain in North Vancouver or West Vancouver.

17624. And then I reached out to my community and found a large group of people that were as passionate as I was about the impact on human beings. We started North Shore No Pipeline Expansion. We've been researching, connecting with local, regional and national governments and educating our community about the project and the risks of spills on the North Shore.

17625. We have some pictures that we would like to show. The first one is Exhibit 259-8-36, written evidence of Chloe Hartley. Could we have that a little bit bigger, please?

17626. Yesterday, Mayor Walton of the District of North Van spoke and described the important recreational, environmental and residential values of the North Shore. I want to show you these values through these photos, these maps that are up here.

17627. This map shows how close the terminal is to Cates Park. Right on the bottom part of the screen, right down here, is Westridge Marine Terminal, directly across from Roche Point, that pointed area there which is in Cates Park.

17628. If the project went through and the new terminal was built, the bow of the tanker berthed at that terminal would be 800 metres from the swimmers at Cates Park. The swimming beach is right there; it's 800 metres. That's not very far. If there was a spill or a leak at the terminal, the swimmers are right there; the kayakers are right there and the other boaters, not to mention the residential

communities around there.

17629. Could we have the next picture, please?

17630. Those show the anchor spots. There's four anchorage spots. One's apparently going to be moved. It shows how close these tankers will be anchored to the residential communities of North Vancouver. That's Dollarton area there. I live right there. I can see the tankers out my kitchen window.

17631. There will be one to two tankers per day coming in to anchor at those spots. Right now there's about one a week. So if the proposal went through, there would be one to two tankers a day coming in and one to two tankers a day going out.

17632. They -- when they're in front of your house and because we live on the side of a mountain, we all -- everybody there -- can see the tankers are right there. It's like having an industrial park in front your window. The lights are right there. The noise of the anchors and the bilge and everything else is right there in front of our kitchen windows.

17633. Could we have the next picture, please? This is Exhibit 259-8-30.

17634. So we've got some pictures here just of our community, of Cates Park. This shows the Westridge Marine Terminal right there with the two green storage tanks behind. And it shows a kayaker and a jet-skier right there.

17635. Can you just show us the next picture, please? It's just really close; it's 800 metres away.

17636. This is a dock at Cates Park. It just shows it's used year-round. As Mayor Walton said, there's about 3,000 people a day using the park. The boats come and go all the time from there.

17637. And just looking the other direction there is Second Narrows Bridge. So the tankers will be leaving Westridge Marine Terminal going through Second Narrows Bridge. They need to go under the bridge at slack high tide in daylight. So there's about a 20-minute period, depending on the time of year, when the tankers can go under the bridge. And it means that there would be again two tankers going out and two tankers coming in within this 20-minute period of slack high tide in daylight.

17638. So it is a very restricted area and it's a very short distance from the terminal to the Seconds Narrows Bridge with all those boats going back and forth and the people swimming in the water directly across from the terminal.

17639. Could we have the next picture, please?

17640. And that just shows the people swimming. That's the terminal right there. If the project was -- if it went through, the berths would be built out quite a bit further. There would be several new berths there and the tankers would be right there.

17641. And the other point about that, is that when the tankers come in, it's like parking in a narrow parking spot; they have to do this. I don't know how to describe it but they go forward-back, forward-back, forward-back so that they can back into the berth. Again, there's all the swimmers, the boaters, the kayakers, and everybody right there.

17642. So that's why we -- is there one more picture or is that it?

17643. And this just shows the end of Indian Arm. So we live at the beginning of Indian Arm; Westridge Marine Terminal is right there. And all the boaters come from all over Greater Vancouver. This is not just a local thing. They come from Richmond, Vancouver, West Van, all over the place and go up Indian Arm to the yacht clubs up there.

17644. So this is why we are very concerned about this project. The tankers are extremely close to where we live. It will be expanded and put right in the middle of our community. And it is not safe. I'm concerned about the people that live there; the risk is unacceptable.

17645. So what are the health effects of pipelines and oil spills?

17646. I'd like to read from our evidence.

17647. Exposure to an oil spill can cause both short and long-term effects on human health. The oil contains chemicals such as volatile organic compounds, polycyclic aromatic hydrocarbons, as well as heavy metals which all have a broad range of potential health effects. Exposure pathways can be from inhalation of toxic fumes, as we all know, direct contact with the skin, but they can also be

absorbed by vapours. So when there is an oil spill, all of those chemicals vaporize and they're in the air like a mist. The skin can absorb them.

17648. So when my husband was poisoned, he had full protective gear on. He had the firefighter uniform on and breathing equipment, but he still go sick. Why? Because the vapours were absorbed around his neck and around his wrists. So all the people that are at Cates Park, that live in the area, will be absorbing the mists from these chemicals.

17649. The acute toxic symptoms immediately following an oil spill can include respiratory symptoms such as cough, throat irritation, and shortness of breath; eye and skin symptoms such as irritation, rashes, and blisters; stomach problems such as nausea, vomiting, and diarrhea; neurological symptoms such as headaches, dizziness, confusion, and weakness. So these are the acute symptoms that happened immediately after an oil spill when all those chemicals vaporize.

17650. So the people that were at Cates Park, all those thousands of people, and all the people that live in the area, will be immediately affected by these chemicals that vaporize.

17651. We have no air quality monitors in our area. The emergency responders, the first responders -- even if there's a first-class, world-class emergency response, they can't get there quick enough. They cannot stop the vaporization of those chemicals. So all the people in that immediate area will be affected by those chemicals.

17652. The long-term effects -- so I've spent the last two years researching what the long-term effects of oil spills are, what happens to people. I'm interested in what happens to the people after these oil spills.

17653. Immunological and endocrine effects such as changes in hormones and immune system markers. So this is changing people's immune systems, how they react, how often they get sick, what happens to people, the diseases that they come down with.

17654. Genotoxic effects such as changes in DNA. So if somebody's exposed to an oil spill, if the mist is there and it is absorbed through the skin, it affects that person's DNA and it affects their children. So even if it's not a pregnant woman, if it's a man and he absorbs these chemicals, it affects his DNA and the baby can be born with a birth defect. And these birth defects are mostly -- the ones that

they've measured so far -- there's huge gaps in the research, but what's happening so far is they know that there's cardiovascular effects; babies are born with atrial septal defects and other heart problems. This is serious problems. The effects on children are much worse than the effects on adults, of course.

17655. Carcinogenic effects such as leukemia and other cancers. This is well-known from benzene. There's been a lot of research on benzene. But the major effect from the chemicals -- it's from a combination of hydrocarbons. It's all of those hydrocarbons together. Diluted bitumen is extremely toxic because it's the bitumen and the diluent added together and mixed up. And that huge mixture of chemicals is what causes all these problems to the immune system and other mDNA changes.

17656. Also, haematological effects such as changes in blood profiles and liver enzymes. Respiratory effects, chronic obstructive pulmonary disease. And then the mental health effects such as anxiety and depression. And they found this out mostly in the Gulf of Mexico when people's homes were destroyed and places like Mayflower where their houses were covered with these fumes and the fumes were absorbed right into the gyprock of their homes and they had to tear the houses down. Obviously it causes stress, anxiety, and post-traumatic stress syndrome.

17657. So the health effects from oil spills in other jurisdictions have been significant, and we know that no matter how well prepared we are, we cannot prevent an accident and we cannot contain exposure to these fumes. We could have the best emergency system in the world, as I said, and we can't protect ourselves. There's no mitigation for this.

17658. Dispersants are currently illegal in Canada, but there's proposals to legalize the use of dispersants in Canada. That's not the right thing to do. The research in the Gulf of Mexico shows that the dispersants on top of the crude oil or the bitumen or the bitumen with the diluent -- the mixture of that third combination of chemicals -- causes severe problems. And the dispersant acts like it's supposed to, what it's created to do. It helps consolidate the chemicals so that people's skin actually absorbs more of the chemicals if they come in contact with the dispersants and causes even worse health effects.

17659. So the Kinder Morgan assessment of health impacts on human beings -- they say that the risks are low and the effect on human health is minimal. That's obviously not true. There's huge gaps in the research.

17660. The spill in Burnaby in 2007 -- there's been no follow-up epidemiological studies on those people. And the people of the Tsleil-Waututh directly across from that oil spill -- nobody has done any follow-up studies on these people.

17661. The measurements in the Human Health Risk Assessments are looking at -- they're measuring things in the environment; they're telling us levels of chemicals. But what we know -- it's similar to a blood test. You get a blood test; if the level is this much you should be fine. But we know that the numbers don't necessarily correspond to what actually happens to the people. And that's what I'm interested in, is what happens to the people. And we know that people are getting really, really sick. We cannot go forward with this project.

17662. We hired an expert, Dr. Tim Takaro, to examine the impacts of the operations of Trans Mountain and to review the Human Health Risk Assessment. He prepared a report "Major Human Health Impacts of the Trans Mountain Project". He focused on two known carcinogens, benzene and 1,3-Butadiene. Both have no safe limit. There is no safe exposure limit to these chemicals. This project will contribute to emissions of both toxic chemicals.

17663. When we hired Dr. Takaro to do this report, he hoped to assess two scenarios of the effect on human health on the residents of the North Shore of Burrard Inlet. The regular operations of the Westridge Terminal was an air inversion and wind pattern that we observed flowing up the north arm of Indian Arm, and a second scenario of a worst-case oil spill in Burrard Inlet in order to do his research.

17664. He tried to get the data. Trans Mountain did not have the baseline data for his report. There are no air quality monitors up Indian Arm or in our area. The closest one is at Second Narrows Bridge. So there is no baseline data.

17665. The studies need to be done. We cannot do a proper risk assessment until we have the data, and we need the baseline data for that. And we need a worst-case catastrophic modelling of a spill so that we can get some more information about what's actually going to happen.

17666. Dr. Takaro's conclusion is that there is no public health justification for this pipeline, the tank farm or the terminal.

17667. The principal risks examined in this report are the risks due to fire and from catastrophic oil spill. It is likely that the proposed expansion would also increase the day-to-day emissions from loading and processing at Westridge Marine Terminal and the Burnaby Mountain tank farm.

17668. In our opinion, these risks were inadequately considered by the HARA performed by Trans Mountain. Harmful emissions into Burrard Inlet should be decreased given our understanding of the carcinogenicity of these emissions. There is no justification for increasing emissions as proposed by the expanded pipeline and transport.

17669. We also worked closely with Dr. Riki Ott. She's a toxicologist who's a world expert on the human health impact of oil spills. Her report is included in our evidence. And what I have told you so far, a lot of it is from Dr. Riki Ott's work that she spent the last 25 years researching.

17670. So I spent many hours researching the human health impact of oil spills and found that actually the impacts on human health from a spill are extremely significant. The impacts do not end in respiratory irritation, as Kinder Morgan claims. In our research, we found that people get very sick from exposure to oil spills, and the impacts are worse in children and DNA changes can affect the next generation.

17671. So we're not even talking about the people that are there, the people on the beaches at West Van, at Ambleside, at Cates Park. It's not even those people; it's their children. Even when they're not pregnant, yet it changes their DNA.

17672. We also researched tanker spills. We hired a data scientist to help us, and we prepared our own report. We looked at tanker spills in restricted areas and harbours. So that evidence is in our written argument. Spills do happen all the time.

17673. Kinder Morgan would have you make your decision based on the assumption that everything will always work perfectly. No tug captains will ever make an error, all safety systems will work, and the world will unfold without error or mistake. We know that accidents happen.

17674. One thing about working as a nurse in an emergency department, is that everybody that's there that day did not expect that to happen to them. Accidents happen. The same is true for oil tankers and oil spills. Accidents

happen and exposure to oil spills happen, as do the health effects from those spills.

17675. So in conclusion for my section, world-class oil spills, no matter how quick -- or sorry, world-class oil spill response, no matter how quick, cannot prevent exposure of residents to vaporized chemicals.

17676. Trans Mountain proposes shipping toxic diluted bitumen through the most populated area in Western Canada. The route, the pipeline, and the tanker route goes past 2.4 million people in Metro Vancouver. And if you include the people around the rest of the pipeline, Vancouver Island, the whole tanker route, it's about 10 percent of the population of Canada.

17677. We are in the national interest. The people are important. The protection of human health must be assured through objective, scientific research before the Trans Mountain project could be approved. The risk is too great. There are no conditions that would make the expansion of this pipeline acceptable.

--- (Applause/Applaudissements)

17678. **THE CHAIRMAN:** Thank you, Ms. Edmonds.

17679. Mr. Howard?

17680. **MR. HOWARD:** Thank you, Mr. Chair.

17681. Mr. Chair and Panel Members, I'd like to begin by thanking you for this opportunity to appear, and to thank your staff for facilitating this division of time between Ms. Edmonds and I.

17682. Panel Members, North Shore No Pipeline's position, in simple terms, is that this project -- and by this project our focus is on the tank farm, Westridge Marine Terminal and associated tanker traffic -- is proposed for the wrong location.

17683. In simple terms, our position is that it makes no sense to impose this large industrial oil port and tank farm, and associated tanker traffic right into the middle of the densely populated neighbourhoods and communities of the lower mainland. We say this project has a location problem.

17684. And I'd like to illustrate that with two points. Ms. Edmonds spoke of the visual impact, the nuisance effect of the tankers, and I want to take you to that in slightly more detail. The affected neighbourhoods of the North Shore are quiet residential areas, with the exception of some minor industry immediately beside the Second Narrows Bridge. The area directly opposite the anchorages in Burrard Inlet are residential and composed of recreational areas that are heavily used.

17685. And the evidence that my client has prepared and offered to this Panel demonstrates that the existing tanker traffic already seriously interferes with the quality of life of residents in that area. Our argument on that point is found at pages 7 to 8 of our written argument, a portion of it is at least.

17686. Ms. Hartley is a witness on behalf of North Shore NOPE. She lives on Kinloch Lane, one block from the waterfront. And her evidence is as follows:

> *"When the ships are anchored at Site "M", Ms. Hartley can hear them. The noise disrupts summer evenings on the patio, it upsets sleep and [it] disturbs peace of mind."*
>
> *"The oil tankers moored at Site "M" are very brightly lit at night. When Site "M" is being used, the surrounding neighborhood is lit [up] like a football field. You can read a book at night under the lights from the tankers."*
>
> *"The lights used by tankers in the evenings profoundly change the scene in the neighborhood from a dark, soft, quiet, private feeling to an exposed, cringing, glare."*

17687. A similar concern is expressed by Ms. June Wells, also filed written evidence on behalf of North Shore NOPE. She similarly can view the tankers from her house, and she states:

> *"When present the tankers emit noise and light twenty-four hours a day. The lights are huge and very bright. These tankers emit large quantities of exhaust fumes that she can sometimes smell from her house depending on the wind."*
>
> *"The noise is such that she is constantly aware of the tanker's presence."*

> *"The glaring lights enter her house requiring her to shut the drapes to decrease the disturbance of the light."*
>
> *"The noise and light also interrupts her sleep. She must modify habits in order to sleep [at night either] by wearing ear plugs, or sleeping in a back room."*

17688. Panel Members, these are the impacts of the existing 60 tankers per year, and they will be increased seven-fold when that tanker traffic goes to up to 406.

17689. So what does that mean for the residents of the North Shore? It means a permanent degradation of their quality of life. It means that intrusive lights, noise and air pollution will deny them the reasonable enjoyment of their property. A large industrial nuisance will have been plunked down into their neighbourhood.

17690. And we respectfully submit that when you weigh the pluses and minuses of this project that you must take into account and give due weight to the deterioration of the quality of life that North Shore residents will experience.

17691. And importantly, Panel Members, Trans Mountain hasn't even assessed these impacts. The North Shore, the communities of the North Shore, are outside the boundaries of the sound impact study carried out by Trans Mountain.

17692. And when NS NOPE inquired whether Trans Mountain was going to conduct any modelling of the light impacts of the increased tanker traffic, the answer was no. And that is found in our argument at pages 10 to 11.

17693. So this, Panel, the picture of the impacts you have before you has come from our clients, and we respectfully submit the picture creates a reasonable basis for concluding that the tanker traffic alone will have a serious nuisance effect on North Shore neighbourhoods.

17694. Now, the second point I want to draw your attention to to illustrate what we characterize as the location problem of this project relates to the doubling of the density of the Burnaby tank farm. I know you've been taken to this in detail. I'm not going to get into the technical aspects of it.

17695. But what I do want to do is point out to you that as between yourselves and the deputy chief of the Burnaby Fire Department, we respectfully suggest that it is the deputy chief who is best positioned to assess the risks arising from the proposed doubling of the density of this tank farm. And it is the deputy chief who is charged with the responsibility of responding to that emergency and charged with the responsibility of safeguarding the communities in the area. And we respectfully suggest that this Panel should accord his opinion and his conclusions some deference.

17696. Put another way, I suggest that it would be inappropriate for this Panel to dismiss or otherwise marginalize those concerns. This is a gentleman who is saying, "It is not appropriate and it is not safe to put this facility into the neighbourhoods of Burnaby."

17697. And we respectfully suggest his opinion on that point is entitled to some weight.

17698. Now, I'd like to turn to two brief remarks that relate first to the case for need for this project and secondly, to the broader public interest assessment that this Panel has to grapple with.

17699. With respect to need, Mr. Denstedt in his oral submissions, presented this case to you, this project to you, on the footing that it is imperative -- it is essential capacity to bring Western Canada sedimentary base and crude to shoreline.

17700. And with respect, we suggest that the evidence before you does not go that far. We rely here significantly on the report prepared by Gunton and Broadbent for Living Oceans Society. We also rely on Trans Mountain's own response to IRs.

17701. We respectfully submit that the Gunton/Broadbent report establishes that this pipeline is not needed in the near to medium term. It is not about solving an immediate bottleneck in capacity. The rationale for this project depends actually on optionality.

17702. Trans Mountain's case really is, excess capacity is not only acceptable, it is a good thing because it gives shippers choice.

17703. And I suggest that it's important to -- that it be reframed in that way because giving shippers choice is a slim premise to justify imposing the impacts and risks that this project poses to the lower mainland in B.C. against the expressed opposition of all of British Columbia, as represented by its government.

17704. Optionality is far less compelling as a national interest than solving a non-existent near-term capacity shortfall.

17705. I want to turn now with some concluding remarks to address the public interest assessment that this Panel must make.

17706. Writ large, what lies underneath your decision whether to recommend the issuance of a CPCN is your assessment of the public interest and it's well-established; the test has been repeated in this Board's previous decisions.

17707. You must focus on the overall public interest, and importantly, this Board has previously stated that while local interests and concerns are relevant, those interests must give way if a paramount national interest is made out.

17708. And I respectfully suggest that this paradigm, if you will, of local versus national interest, actually has no real application in this project. It is a false construct, and here's why: the interests arrayed against this pipeline proposal and the terminal and the tank farm cannot be reduced to "local interests". Local interests are a few landowners who are concerned about a pipeline. There are a few property owners who are concerned about the nuisance effect of something.

17709. The province of British Columbia representing 4.6 million people of this province has said it cannot support the project. That is not a local interest. All of the governments of the lower mainland representing 2.5 million residents, along with the City of Victoria and all of the First Nations along the receiving end of this pipeline have said the risks are too great, the impacts are too great. This is the wrong location.

17710. And I respectfully suggest, Panel members, that it would do a disservice to the governments and the people they represent for those interests to be consigned to the bin of local. They are far more than that. They are regional interests and they are expressed by the province, which is a member of the confederation. So what about on the national interest side?

17711. This project is not national. It is not national in its scope, nor in the reach of its benefits. It's an Alberta project. There's nothing wrong with that. Alberta, like every other province, is entitled to pursue its economic destiny.

17712. It crosses one provincial boundary, which is the only reason this Panel has jurisdiction over it and the benefits it will generate are predominately focused in Alberta. This project lacks the real indicia of national interest. What it is is a regional interest.

17713. So what this Panel has before you, you do not have a battle between the local and the national. You have competing regional interests.

17714. And I respectfully submit that for this Panel to recommend to government that this project be approved against the unanimous opposition of the Province of B.C. and the governments of the lower mainland, you would have to be able to point cabinet to a super ordinate national interest that will be served by that.

17715. And I respectfully suggest you cannot, because it is not made out on the record. It simply isn't there. Optionality for shippers is not a national interest. More tax revenue for Alberta, while a great thing for Alberta, is not a national interest.

17716. So what should you be saying to government in your report? And I'm picking up here on the question, Mr. Chair, that you asked the counsel for Cowichan because you've got issues that are squarely within your jurisdiction and issues that are within the scope of your consideration but are not within your jurisdiction to regulate.

17717. I respectfully suggest, and I endorse her submissions on this point, above all, Cabinet needs a very clear and accurate record from this Panel. And we respectfully submit, at the core of that record there should be a recognition that the opposition by the province and the lower mainland governments -- these are not spurious concerns. These are concerns that arose from a thorough and thoughtful participation in this evidentiary hearing process. They are valid and they should be given due weight.

17718. We further suggest that this Panel should point out to government that the case for this project and its stature as meeting the national interest test has diminished and weakened and simply isn't made out.

17719. Ultimately, it's in the government's hands whether to approve this project but they need a clear and well-informed report from you to do so in a sensible and articulate way. We respectfully suggest that your report at the end of the day should recommend that this project is not in the public interest and the CPCN application should be denied.

17720. We appreciate the opportunity to appear before you, and barring questions, those are the submissions of NS NOPE.

17721. **THE CHAIRMAN**: If we could indulge, the Panel might take 10 minutes to consider some possible questions.

--- Upon recessing at 3:20 p.m./L'audience est suspendue à 15h20
--- Upon resuming at 3:30 p.m./L'audience est reprise à 15h30

17722. **THE CHAIRMAN:** The Panel does have questions for you if -- as you say, you indicated you're prepared to entertain them. So perhaps Ms. Scott?

17723. **MEMBER SCOTT:** Yes, Mr. Howard. I'd like to explore with you, if I may, the last point you made about local versus national interests. And just for the sake of argument, let's assume that the local interests are well-established, well-defined and understood.

17724. You used the phrase that what is required is a 'superordinate national interest'. I don't understand the phrase. As I understand this project, while taxes will be collected in Alberta, they'll be collected as well to a certain extent in British Columbia. And out of both provinces federal taxes will be collected.

17725. So if you could identify what the superordinate interests ought to be?

17726. **MR. HOWARD:** Thank you.

17727. The taxation revenues alone are not a sufficient interest to raise this project to the national interest level. You would need to point to something in the case for this project where it meets a pressing national need. And we say that really the rationale depends on creating transportation capacity for crude. And the record before you indicates that there is no pressing and immediate need for the capacity that will be added by this pipeline. So it can't make out that core element of its purported case for national interest.

17728. The taxation revenues themselves that will be generated outside of Alberta are not significant enough to warrant national interest, to elevate them to the level of national interest.

17729. **MEMBER SCOTT:** Sure. And there will be federal taxes collected as a result of that.

17730. But Okay, let's get out of taxes.

17731. **MR. HOWARD:** Okay.

17732. **MEMBER SCOTT:** And tell me, what would qualify as a superordinate national interest?

17733. **MR. HOWARD:** If there was no means to get a resource to market at all, if this was the sole means of bringing a resource to market, that may.

17734. **MEMBER SCOTT:** The existing pipeline as I understand it is apportioned now, meaning that there are constraints on the part of shippers that are using the pipeline now; they're not able to access it all of the time reliably -- or I shouldn't say reliably. They are apportioned in terms of how much capacity they're allowed while their contracts may have entitled them to more if the pipeline were constrained.

17735. So what beyond that are you talking about as no other way? I take it it must be something more than that.

17736. **MR. HOWARD:** Well, with respect, we say that the analysis of need must look beyond this pipeline alone. It must look at the overall availability of transportation capacity to move crude from Alberta. That's what the Gunton/Broadbent report does. It's not just simply a matter of asking, "Is the current pipeline fully subscribed?" It's a question of asking, "Is there capacity for the forecast production from Alberta to get to market?" And Gunton/Broadbent indicates that there is. And it further indicates that if you take into account dispatching some rail capacity over the near to medium term, any incremental increase in demand can be met efficiently that way.

17737. **MEMBER SCOTT:** So can you give me an example of a superordinate national interest that justified a project in this country now?

Because when all of these -- the existing pipelines were constructed, I don't believe they would have fit your definition of what a -- or criteria for what would be in the national interest.

17738. **MR. HOWARD:** Well, I think you have to -- the process, the public interest assessment, is a matter of looking at, if you will, both sides of the equation simultaneously; it puts in the minuses, the benefits, and the burdens.

17739. **MEMBER SCOTT:** And for the sake of argument, I've suggested that you have ---

17740. **MR. HOWARD:** Indeed.

17741. **MEMBER SCOTT:** --- well-established local interests.

17742. **MR. HOWARD:** Indeed.

17743. And what I would say is this, that in a case such as this where the reasons against the project are so strong and are so well-founded in a strong evidentiary base, the need for the national interest or an interest on the other side goes up; i.e., there has to be stronger evidence that the project is so needed that it can be reasonably justified to impose it on an entirely unwilling population. In essence, that's the equation you're being asked to consider. And this project doesn't meet the criteria.

17744. Now, you may be asking me, "Well, can you give me a workable definition of one that will?" I don't think you need to answer that question in order to know that this one doesn't.

17745. **MEMBER SCOTT:** I believe my friend, Mr. Davies, has a question for you.

17746. **THE CHAIRMAN:** Yes, Mr. Davies.

17747. **MEMBER DAVIES:** The optionality question is worth exploring. You've discounted that as being not sufficient. We before us have a situation that we have to decide whether or not to accept that reasoning or to challenge it. So we haven't made any decisions but I do want to explore a couple of aspects of it which go to the question of free market. It is in the national interest, I think, for all of us who participate in the economy that makes up the Canadian economy.

17748. At this point, it's well-established that the only substantive market for Canadian energy products outside of Canada is the US. There are no other market avenues currently available. Do you accept that?

17749. **MR. HOWARD:** Do you mean with respect to the markets that Canadian shippers currently have the ability to access?

17750. **MEMBER DAVIES:** Yes. It's a continental market, is my proposition.

17751. **MR. HOWARD:** With the exception of the pipeline that is currently being -- you know, the shippers that are currently being serviced by the existing Trans Mountain pipeline, I would say in general yes, that appears to be the picture.

17752. **MEMBER DAVIES:** Okay.

17753. So I'm going back a long ways to economics in undergrad, but I remember the definition of a free market as being a market characterized by a number of factors, two of which involved a willing buyer and a willing seller. The question of optionality bears directly on that equation, I would submit.

17754. Now, let me challenge you with this proposition, that if you have a captive seller and a buyer, does that meet the definition you would propose be considered a free market?

17755. **MR. HOWARD:** I haven't proposed a definition of free market and I will answer your question thusly. This debate is not about whether Canadian oil producers should have access to another market. When I say this debate I mean the debate about this project. What we're saying is accepting that establishing alternate market access is a valid objective, this is the wrong place to do it.

17756. Now, if this Panel wishes to present Cabinet with a report that says the principle of free market is of such superordinate importance -- to borrow my own phrase again -- that it should be used to override the opposition of the province and the Lower Mainland governments, it's open to you to do so. But I respectfully suggest that that's the wrong result. The principle of "free market" -- you're making an assumption that that access can only be achieved this way and I don't think that's the right assumption to make.

17757. **MEMBER DAVIES:** That moves it to a different question, which isn't the one I asked. We were looking at your proposition that the mere establishment of optionality was insufficient to override local or, as you characterized it, regional opposition.

17758. So whether or not this is the right project or not I think that's a separate but important test as well. And I'm not at all suggesting that any of the three of the Panel members before you has reached any conclusion on that. I'm just exploring your theory because it's really important in order for us to make an intelligent recommendation around public interest, that we understand the proposition that you put before us.

17759. The questions that I have -- that was simply it. So I'll turn it back the Panel Chair. Thank you.

17760. **THE CHAIRMAN:** With that, the Panel have no further questions.

17761. And we would like to thank Ms. Edmonds and Mr. Howard for your presentation and your argument today. And on behalf of all of the evidence that North Shore No Pipeline Expansion Society has filed, we will consider it all, and including your argument of today.

17762. With that, we are adjourned until 6:30 this evening when we will hear from Metro Vancouver.

--- Upon adjourning at 3:40 p.m./L'audience est ajournée à 15h40
--- Upon resuming at 6:31 p.m./L'audience est reprise à 16h31

17763. **THE CHAIRMAN:** My first chance to say good evening and welcome to this evening's session in Burnaby, which is part of the National Energy Board's hearing regarding the Trans Mountain Expansion Project.

17764. My name is David Hamilton and I am the Chair of the Panel. And with me to my left is Ms. Alison Scott and to my right Mr. Phil Davies, and together we are the Panel assessing Trans Mountain Expansion Project.

17765. And I think in the interests of safety, I'll -- in the event that we hear a fire alarm, the procedure will be to exit the hearing room using the entrance that

you came in. Once you are outside the hearing room, there are two evacuation routes, the first directly to your left when you exit the hearing room doors, and the second is located beside the registration desk where some of you received your lanyard. Uniformed security guards will be at both locations to facilitate your exit. Please follow their instructions.

17766. Once outside the building, proceed to the hotel muster point located on the northwest corner of the Delta Burnaby Hotel and Conference property where Sumner Avenue and Manor Street intersect. At the muster point, please ensure all members of your party are accounted for.

17767. I think you've been advised concerning the timing system and how it works so without further ado, perhaps I should ask Trans Mountain counsel to introduce themselves to Metro Vancouver presenters.

17768. **MS. OLENIUK:** Good evening. My name is Terri-Lee Oleniuk and I'm counsel to Trans Mountain. Still with me, to my left, is Lesley Matthews, and she's the regulatory lead for the project.

17769. **THE CHAIRMAN:** Thank you Ms. Oleniuk.

17770. With that, we have read all of the submissions and evidence filed by Metro Vancouver and your written argument in-chief, so we'd be pleased to hear your oral summary argument.

--- FINAL ARGUMENT BY/ARGUMENTATION FINALE PAR METRO VANCOUVER:

17771. **MR. HILDEBRAND:** Thank you Mr. Chairman and Panel. My name is Ralph Hildebrand. I'm corporate counsel and GM of Legal and Legislative Services at Metro Vancouver.

17772. With me this evening, to my right-hand side is Roger Quan who's Director of Air Quality and Climate Change. Immediately to my left is Alice Toal who's also legal counsel. And Frieda Schade who's division manager, planning and engineering services for regional parks on the far left.

17773. **THE CHAIRMAN:** I'm sorry, I don't mean to interrupt you Mr. Hildebrand. Would you like questions during if the panel have any or would you prefer to wait to the end? They won't be counted as your time if we ask a

question, just to be clear.

17774. **MR. HILDEBRAND:** I would be delighted to take questions during the hearing if that's what you would like.

17775. I would like to give you a bit of an overview of why we're here this evening and what we hope to accomplish.

17776. Metro Vancouver's position is, of course, set in detail in its written argument and the supporting evidence, which you've read. And its position is that the NEB should be -- and this Panel should recommend against issuing a Certificate of Public Convenience and Necessity for the project.

17777. The GVRD Board confirmed that direction in a resolution May 15th of 2015 in which it expressed its opposition to the proposed Trans Mountain Expansion Project.

17778. Today I want to achieve three goals. One is to give you a context for who Metro Vancouver is. The second is to provide you with an overview of what Metro Vancouver's concerns are. And the third is to highlight some examples of those concerns in Metro Vancouver's written argument supporting its position.

17779. So going to the first issue, who is Metro Vancouver? Metro Vancouver is a trade name that refers to four governmental entities, the Greater Vancouver Regional District, the Greater Vancouver Water District, the Greater Vancouver Sewerage and Drainage District, and the Metro Vancouver Housing Corporation.

17780. Its members include all 21 municipal governments from Langley to Bowen Island and from Surrey to Lion's Bay, as well Tsawwassen First Nation and a large unincorporated area. And that's basically the area you see on your screen to the left.

17781. The Metro Vancouver entities provide core water, sewerage, drainage and solid waste, regional growth management, and regional park services to the region. So it's quite a varied portfolio.

17782. In addition, somewhat uniquely, Metro Vancouver has the delegated authority under the *B.C. Environmental Management Act* to provide the service of air pollution control and air quality management within the region. We're the

only local government other than Montreal that provides that service.

17783. Two point four (2.4) million people live in this region and enjoy the pristine natural spaces and environment, and we submit that, not unexpectedly, this is an environment unlike any other in Canada for an urban setting.

17784. Because of the rather unique suite of services provided by Metro Vancouver, its submissions before this panel occupy a rather unique niche.

17785. As a result of the provision of core services and its regulatory role, Metro Vancouver has both the responsibility and expertise to identify and address the direct and indirect effects of the project on the Metro Vancouver region and we understand the critical need for environmental and socioeconomic assessments that are both complete and reliable.

17786. And finally, we understand the process of establishing terms and conditions that are necessary or desirable in the public interest. We do that all the time.

17787. Providing a bit of a summary of Metro Vancouver's written argument, which is -- as you say, you've reviewed. And that argument focuses on three key concerns. One is the environmental assessment that was done by Trans Mountain. It is our position that that assessment incomplete and therefore the application is incomplete.

17788. Metro Vancouver does not intend in this summary, nor in the written argument, to fill in the gaps but rather to show by its examples how there are deficiencies in the application.

17789. Secondly, not only is the application incomplete, the application contains significant errors and omissions that cannot support a conclusion of this Panel that the project will not result in significant adverse environmental effects. Quite the opposite, there are significant environmental and human health-related risks.

17790. And the thirdly, the project is not in the public interest. The burdens created by the construction and operation of the project outweigh the benefits that will derived from the project. The significant adverse environmental impacts of the project are not justified in the circumstances.

17791. Heavily-populated Metro Vancouver is not the place to introduce the risk that this project entails.

17792. Moving first to the issue of spills, and particularly marine spills, one important example of the incompleteness of the Proponent's application arises in the context of its spill analysis.

17793. Trans Mountain acknowledged in their oral argument that *"the likelihood and potential impacts of spills is perhaps the most debated issue in the entire process"*. And that's a quote from them.

17794. To address that issue, the NEB required Trans Mountain to include an assessment of worst-case spill scenarios at representative locations along the marine shipping routes.

17795. Trans Mountain has failed to fulfill that requirement, in our submission. It did not assess a credible worst-case spill scenario in the Burrard Inlet area.

17796. We agree with the evidence and arguments submitted by the City of North Vancouver, the City of Vancouver and the Tsleil-Waututh Nation on that point. And you've heard from them.

17797. Instead of providing a full assessment, Trans Mountain severely limited the definition of credible so as to eliminate the need to provide any navigational-related spill analysis within Burrard Inlet and then critiqued any party who utilized a more credible definition of "credible".

17798. The foundation of its argument and evidence on this point is not only in error, it is not supported by the evidence Trans Mountain itself submitted.

17799. To support its position that no analysis for navigational spill in Burrard Inlet -- and Burrard Inlet, as you are aware, is the inner harbour of Vancouver, the Metro Vancouver area -- Trans Mountain relied on what it described as a comprehensive marine and navigational risk study conducted by Det Norske Veritas. That study, and the evidence in support, was set out in a three-page memo filed by Trans Mountain two months ago during the reply evidence in the information request process.

17800. The memo says that a major spill is a very low likelihood event in the

region. As a result, within the Burrard Inlet the only assessment analyzes a spill associated with the loading of a stationary tanker at the Westridge Terminal though that assessment is also, we submit, replete with flaws.

17801. However, the short memo referred to above does not support Trans Mountain's position. It says that for vessel movements in the Burrard Inlet area, and I quote:

> *"Twenty-five (25) percent of the transits could potentially damage heavily the oil tanker."*

17802. That is, there is enough energy associated with the vessel speed to cause a large hole in a tanker. This large hole could have the potential of releasing the same amount of diluted bitumen, 16,500 cubic metres, that Trans Mountain assumed would be released in their assessment of a spill scenario at Arachne Reef.

17803. Trans Mountain's response to the scenario -- its own expert acknowledges that is the possibility of heavily damaging an oil tanker in Burrard Inlet -- is to clothe the problem with a regulatory veil so as to make the problem disappear.

17804. What do I mean by that? Trans Mountain's argument, despite its expert evidence of a physical possibility, is that because there are vessel movement restrictions, the risk of a collision is rendered negligible. The physics are there but apparently regulations will eliminate the problem.

17805. That is like saying while motor vehicle speeds on a highway are sufficient to cause fatalities, no fatalities will occur because the rules of the road will prevent motor vehicles from coming in contact with each other.

17806. A regulatory regime no more prevents boating or shipping accidents on the water than highway and traffic regulations and speed limits prevent traffic accidents. One does not have to look far for examples of marine vessel accidents, including oil spills, which have occurred despite regulatory regimes.

17807. The worst-case scenario that is the basis of Metro Vancouver's air quality dispersion analysis is oddly enough made more credible because of Trans Mountain's submissions rather than despite them. And this was a point that I tried to go through with our staff when I was looking at the argument, and that

was the issue of, we can do all the analysis we want but if we don't have a credible genesis event, then the analysis is not worth anything. And that's why we submit it is a credible event.

17808. The ramifications of the worst-case scenario used by Metro Vancouver and the City of Vancouver in their analysis are set out in detail in Metro Vancouver's written submission. The premise for the analysis is credible. The analysis is sound and the conclusions are that there are significant impacts on the environment and local population.

17809. The primary point here is that Trans Mountain didn't provide the Board, or this Panel, with evidence that it must have to properly engage in a cost benefit analysis because the appropriate risks have not been identified.

17810. Earlier this week, the Panel questioned Ms. Giltrow on behalf of the City of North Vancouver on the coordinated response and improving the status quo with respect to spills and emergency response.

17811. Metro Vancouver wants to take this opportunity to point out that no amount of spill and emergency response, world-class or otherwise, will be sufficient to address the air quality impacts and resultant health consequences of a spill.

17812. Spill containment protocols and the procedures will not reduce the consequences for air containment. Oil contaminates the air with toxins, whether it's contained in a boom or is floating unimpeded on the water.

17813. A single spill incident will result in over one million people possibly exposed to levels of benzene above the acute inhalation exposure limit, with consequential health effects ranging from life threatening and irreversible to mild or transient effects. In short, this is the wrong place to introduce an increased potential for that type of risk regardless of the spill responses available.

17814. With respect to a spill at Westridge Terminal, Trans Mountain's analysis of a spill is also fraught with difficulties. Trans Mountain completed an analysis of 160 cubic metres of product at the Westridge Terminal. This is the volume of a loading arm, which based on Trans Mountain's analysis, is assumed to spill into a previously deployed containment boom.

17815. As a delegated authority for regulating discharges of air contaminants

into the environment in Metro Vancouver, Metro Vancouver staff have a great deal of familiarity and expertise in air quality dispersion modelling as part of an environmental assessment. It is part of their bread and butter. It is their daily work.

17816. It is their responsibility to review environmental assessments, and as part of that review make recommendations to proponents and their consultants to ensure that the dispersion modelling put forward in support of an application is robust and defensible.

17817. Metro Vancouver had to be prepared to defend its modelling requirements and results in court when proponents contest conditions and restrictions placed on them as part of the air permitting process. They are always prepared at a high level to meet those contingencies.

17818. Metro Vancouver's determination -- looking at the materials submitted by Trans Mountain -- is that the air quality dispersion modelling assessment submitted by it for this Westridge Terminal spill scenario is neither robust not defensible. It contains significant gaps and errors.

17819. Those errors include, first, an insufficient sample of conditions; secondly, an erroneous parameter; and third, a spatial resolution that is so coarse that it is absolutely fatal to the reliability of its submissions.

17820. **THE CHAIRMAN:** Mr. Hildebrand, if I may interrupt -- and the clock will stop -- to pick up on the role of Metro Vancouver in other applications.

17821. You receive other applications for work you have to do. Is that based on provincial legislation? Is there federal regulatory relationships with other agencies involved when you have to make those determinations and to hold the modelling and all the requirements that you -- the stringent requirements you require to approve?

17822. **MR. HILDEBRAND:** So that is done pursuant to provincial regulations, the *B.C. Environment Management Act*. And we are unique obviously, as I indicated, in B.C. in having that responsibility.

17823. Does that meet your question?

17824. **THE CHAIRMAN:** Yes. But to the level -- that's the Act, you

know, you regulate under as we regulate under CEAA and the *National Energy Board Act*. Do you -- maybe I'm framing my question wrong.

17825. You receive applications that are from a number of bodies. Give me an example of what types of applications you receive to operate within Metro Vancouver.

17826. **MR. HILDEBRAND:** We regulate, for instance, the refinery in the lower mainland. So there is an oil refinery here, and we regulate it and spend a great deal of money and effort training our staff to know the ins and outs of running a petroleum refinery and what sort of air contaminants it emits and what kinds of things they can do to address them.

17827. We address things like contamination coming from, for example, activities that are decomposting waste from the lower mainland and how that is processed and discharged. We look at air contaminants like local businesses that would have a smokehouse that would be emitting smoke into the air from smoking meats. So it's a very wide range.

17828. **THE CHAIRMAN:** And my follow-up question. The refinery that you do is that under -- was that authorized under provincial or federal legislation?

17829. **MR. HILDEBRAND:** That is provincial legislation.

17830. **THE CHAIRMAN:** Okay, thank you.

17831. **MR. HILDEBRAND:** So moving to provide some particulars of the errors I've just referred to.

17832. Despite the NEB's requirement to take into account the range of weather and marine conditions that could prevail during a spill event, the dispersion modelling conducted by Trans Mountain initially examined a single hour of the year. In terms of weather conditions, it's one air temperature, one wind direction, one wind speed. The model showed the air contaminant neatly and obediently avoiding any of the land surrounding the harbour.

17833. A sample of one is hardly robust. You would not decide to wear only shorts and sandals for the year based on a single sample from a nice sunny day in the middle of August. How could a sample of one be sufficient to analyze an event with such significant human health and environmental consequences?

17834. Quite rightly, the NEB had concerns and requested additional modelling from Trans Mountain. Trans Mountain responded by adding two additional hours to their assessment. A sample of 3 out of the 8,760 hours in a year.

17835. How does that compare to what we would require if we were issuing a permit in this case?

17836. Each hour of the year contains a unique combination of air temperature, wind speed, wind direction, and tidal states. The accepted minimum practice for air quality dispersion modelling as set out in the B.C. Dispersion Modelling Guidelines promulgated by the Ministry of the Environment and followed by Metro Vancouver and adopted by it, is to model all 8,760 hours to capture the full range of meteorological conditions.

17837. As a matter of fact, a one year analysis is a minimum. The standardized analysis is between a range of one to five years. To give you an idea of what that takes to do that modelling, once the modelling input goes into the computers, the computers run for a month to spit out the modelling when you're doing 8,760 hours.

17838. Failing that, a model run should be selected in this case at a minimum to capture seasonal differences and worst conditions. Trans Mountain in this case has merely provided dispersion modelling based on three hours.

17839. Trans Mountain's second error relates to an erroneous parameter. Trans Mountain's oil spill modelling uses incorrect heights for the observed wind speed and direction, which adds another layer of uncertainty to the model results.

17840. As set out in Metro Vancouver's evidence, there are a number of examples where Trans Mountain assumed anemometer heights of 10 metres where the actual height was 12 to 14 metres. What is the effect of that or how does that affect the results? The model, as a result, is to erroneously increase wind speed which increases the dispersion of pollutants and underestimates the concentration of pollutants that people are exposed to.

17841. With respect to model coarseness, this is a striking concern. Trans Mountain's air quality dispersion modelling at Westridge Terminal is too coarse. Coarseness relates to the level of detail in the model of the physical features

affecting dispersion. Extremely fine detail would exactly mimic the physical features of the study area. A coarse model is like a heavily pixilated screen. As the level of coarseness increases, the features no longer become recognizable and of course the modelling is less reliable.

17842. Here the modelling is so coarse that the Second Narrows Marine Passage, which their ships are going to be going through, is modelled as a land mass connecting Vancouver and North Vancouver rather than a waterway. This is more than visually wrong. This causes the wind characteristics in the model, and ultimately the dispersion modelling results, to be not only unreliable, but plainly off the mark.

17843. Metro Vancouver's evidence outlines how this air results in higher predicted winds and an overestimation of dispersion. The ultimate outcome of this error is that Trans Mountain has underestimated air pollutant concentrates for their oil spill scenario. This means that Trans Mountain's model fails to detect concentrations of gas for even a small spill of 160 cubic metres of product that could result in significant impacts to human health, life, and to the environment.

17844. Metro Vancouver, in trying to better understand the effects of an oil spill, commissioned an air quality dispersion modelling analysis of credible worst case spills and found significant adverse effects, most notably related to human exposure to unacceptable levels of harmful air pollutants and in the short term following the oil spill.

17845. We reiterate our position that the imposition of conditions does not cure the issues that we have set out here today.

17846. There's also an incomplete assessment with respect to operational emissions. Moving beyond Trans Mountain's inadequate assessment of air quality as a result of a spill, their assessment of the effects of their operational activities on air quality are also inadequate.

17847. Metro Vancouver has an airshed that has to be carefully managed. This NEB Board in 2004 in a different context recognized the sensitivity of the airshed and the fact that there was a limited capacity to accommodate additional pollutants without negative effects. Metro Vancouver's airshed is no less sensitive today than it was in 2004.

17848. Since that time, Metro Vancouver has worked to improve the air

quality in its airshed. And this is in spite of the rapid growth in population and impact from sources outside of its jurisdiction.

17849. As a regulator and protector of this airshed, Metro Vancouver had concluded that Trans Mountain's submissions do not receive a passing grade. They do not support a final conclusion and specifically do not support a conclusion that there will not be harmful environmental and human health effects from Trans Mountain's operations.

17850. Metro Vancouver carefully reviewed Trans Mountain's submissions regarding the environmental ramifications of its operations. If the submissions of Trans Mountain herein had been for the purpose of obtaining a permit from Metro Vancouver to discharge pollutants, Metro Vancouver would have rejected the application.

17851. Two examples of the inadequacies are an inappropriate photochemical air quality modelling plan, and unreliable evidence regarding the level of emissions.

17852. With respect to the wrong modelling plan, this related to Metro Vancouver's submissions on volatile organic compounds commonly referred to as VOCs. These are a precursor to pollutant reacting with nitrogen oxides to form ground level ozone or smog, the brown stuff you see. Reduction of VOCs is an important focus of Metro Vancouver's Regional Ground Level Strategy that was adopted in 2014.

17853. Trans Mountain failed to consult on methodology, scenarios, meteorology, and inputs to model the impacts of ground level ozone rising from the project's operations. Metro Vancouver made repeated requests to be consulted on and engaged in the development of a photochemical air quality modelling plan. However, Trans Mountain proceeded with its photochemical modelling without the input or agreement of Metro Vancouver. The result, as set out in detail in Metro Vancouver's evidence, is that the modelling is wrong and in error.

17854. With respect to the evidence of the level of emissions, there's no trustworthy support for Trans Mountain's assessment of VOC emissions from its operations. One of the key emission inputs into the photochemical model is the emission of VOCs from the Westridge Terminal. Trans Mountain's estimates of the efficiency of the removal of VOCs by the vapour combustion unit at this

terminal have ranged from initial 90 percent to 100 percent to 99.9999 percent and finally settled at 99.5 percent.

17855. Metro Vancouver repeatedly sought information on the basis of these control efficiency claims. The only information received is that the final number is based on very limited testing of tanker loading at a terminal in Texas. In light of the fact that those tankers were loading different products than will be loaded at Westridge, and that Trans Mountain chose to use only 3 test results when 23 results were available, cast a considerable pall over its submissions.

17856. An accurate and defensible estimate of volatile organic compound control efficiency is essential to provide a reliable estimate of project emissions of a pollutant, which has been carefully managed in this airshed. Metro Vancouver submits that Trans Mountain's estimates are unreliable.

17857. The assumed control efficiency for vapour combustion units also impacts on Trans Mountain's estimates of some of the chemical constituents of the vapours, which would be released at Westridge. Many of the evaporation constituents of petroleum products are directly harmful to human health and Trans Mountain's estimates of the impacts related to benzene, a hazardous air pollutant, show unacceptable concentrations in the community.

17858. There are other deficiencies and inaccuracies and failure to apply best practices, which are described in detail in Metro Vancouver's written argument and supporting evidence.

17859. All of this supports Metro Vancouver's conclusion that Trans Mountain's environmental assessment is incomplete and does not give this Panel enough relevant information to make a decision on the project.

17860. What about adverse environmental effects? The second substantive arm of Metro Vancouver's submissions is that the project will result in significant adverse environmental effects.

17861. Prior to providing those submissions, there are two preliminary thoughts of concern regarding Trans Mountain's submissions on the environment. One is related to Trans Mountain's failure to commit to applying its resources to overcome any environmental disasters, and the other relates to their peculiar position that the environmental impact of their project is minimized because a large portion of the project is a twinning of the existing pipeline.

17862. With respect to the first point -- commitment to a response to an environmental disaster -- while Trans Mountain refers to the resources such as insurance and cash reserves that it has available to respond to an environmental disaster, at no point in either the written or the oral submissions has Trans Mountain committed to applying those resources to an environmental disaster.

17863. For example, with respect to cash reserves, Trans Mountain says that it *"expects that any loss would be covered by cash reserves"*.

17864. This is a peculiar argument. It would certainly not stand the test of a marriage ceremony and certainly shouldn't stand the test of an application of resources to disasters arising within this heavily populated area.

17865. Secondly, with respect to the environment, Trans Mountain asks the NEB to take on faith the statement that twinning the pipeline will minimize the environmental impact of the project. There is no evidence to support this conclusion. It is the mainstay of Trans Mountain's submission, and no matter how many times it is repeated it is an empty shell.

17866. There is no evidence that the driver of the route for the pipeline in 1953 -- when it was first constructed -- was determined by environmental factors or that twinning will result in fewer environmental consequences than if a new or more appropriate route was chosen now. The route chosen then, like the route proposed by Trans Mountain for this project, is driven by economic factors.

17867. What then are the potential impacts to Metro Vancouver and its regional parks, green spaces, and sensitive ecosystems?

17868. While Trans Mountain emphasizes the benefits of twinning, very little of that twinning actually occurs within the Metro Vancouver region.

17869. Metro Vancouver is high in biological diversity and hosts a large number of species of conservation concern, which is truly remarkable considering it's a dense urban environment. Parks and sensitive ecosystems along the potential route and zone of impact of the proposed pipeline route within Metro Vancouver, provide habitat that support at least 139 species or sub-species at risk or species of conservation concern.

17870. Within Metro Vancouver, the project and associated shipping route has

a potential to impact 40 city or regional parks, some of which are considered to be the most important and outstanding in the world; up to 34 fish-bearing waterways and water bodies; and 14 ecological reserves and wildlife management areas.

17871. Metro Vancouver estimates that the project will cause a loss of over 1 million square metres of green space. This creates a domino effect of impacts, including habitat fragmentation, drainage alterations, and the creation of edge habitat, which in turn has impacts on vegetation and wildlife that extend well beyond the footprint of the pipeline.

17872. Trans Mountain's assessment of the environmental impacts of the project in the region are not reliable or complete. To give an example, the Brunette River is an emerging success story in Metro Vancouver. It is an example of bringing back to environmental vigour a drainage area that was highly impacted by urban drainage. Extensive efforts have been successful and fish are coming back to this water course and other diversity.

17873. However, as set out in Metro Vancouver's evidence, Trans Mountain undertook only one day of surveying. Unless data is collected over a variety of days, using methodology which is appropriate to the season, the data is not representative and cannot be a reliable assessment of the environmental impacts.

17874. With respect to the route choice in Metro Vancouver, Metro Vancouver notes that a stated criteria in the selection of the pipeline route by Trans Mountain, is avoidance of parks and protected areas. However, the proposed routing of the pipeline goes through Surrey Bend Regional Park. Trans Mountain supports this choice because it is judged to provide the least impact overall to the citizens of Surrey.

17875. On the one hand, Trans Mountain has not provided evidence to support this conclusion, and on the other, this routing choice shows Trans Mountain's true colours: when environmental and economic factors are in the balance, the economic criteria wins.

17876. Metro Vancouver's position is that a route through a complex and sensitive bog would have significant impacts, and in the event of a spill the results would be catastrophic.

17877. Trans Mountain's choice to route the pipeline through a rare bog ecosystem in Surrey Bend Regional Park, despite the possibility of locating it in

an adjacent easement within the proposed route corridor, is inconsistent with Trans Mountain's stated routing criteria and reveals its true intention: to minimize costs.

17878. On that point, I want to touch upon something that came up during the presentation of Mr. Capuccinello for the City of Surrey. If you recall, he was asked whether the decision about routing the pipeline through Surrey Bend Regional Park could be left to a detailed route hearing, which would occur after any approval given by the Governor in Council.

17879. We agree with the City of Surrey's position, namely that the project, if it is approved by the NEB -- as it should be determined as part of this process and made absolutely clear -- that Trans Mountain cannot proceed with a route that involves Surrey Bend Regional Park.

17880. Metro Vancouver's position is that deferring the decision to a detailed route hearing significantly narrows the scope and the robustness of the review, review which is being undertaken at this time by this Panel. Consideration of the impact of the project on Surrey Bend Regional Park is part of the NEB's assessment of the environmental impacts of the project. This needs to take place in the context of this hearing with the entirety of the evidential record available to the Panel.

17881. With respect to public interest, Metro Vancouver's final submission is that the project is not in the public interest because Trans Mountain has not demonstrated that the potential economic benefits of the project outweigh the burdens. In particular, there is an inconsistency between the criteria for assessment of environmental and socio-economic impacts compared to the project's socio-economic benefits. While potential economic benefits from the project are considered, the full range of impacts -- i.e. the costs, both human and monetary -- are not considered.

17882. Metro Vancouver recognizes that the NEB has stated in its List of Issues that it does not intend to consider the environmental and socio-economic effects associated with upstream or downstream factors. As a result of today, I note that some of that may change in the future. But you are where you are today.

17883. It is respectfully submitted that bifurcation of issues into local consequences and upstream or downstream consequences, is a bit of a misconception. Local actions have global effects and global actions have local

effects.

17884. I'm not talking here about global warming. Metro Vancouver's evidence indicates that air quality issues in its watershed are not only affected by activities in this airshed. Just as smoke from fires on other continents works its way here to affect local air quality, so do emissions of common pollutants, air toxins, and greenhouses gases from the end-use of petroleum products, those products that will be shipped and sent out through this pipeline.

17885. With this in mind, Metro Vancouver has included in its written submission its analysis of the climate impacts of the project, impacts which it is submitted are a component of the missing part of the equation with respect to a comparison of the burdens and benefits of the project.

17886. Using the information available in the application regarding the expected increase in petroleum products available in the market, commonly acceptable standard use to calculate the cost of climate change, and the estimated climate impacts in Metro Vancouver and Canada, it is evident that the costs associated with climate impacts resulting from the project are significant and outweigh the economic benefits presented by Trans Mountain.

17887. The total cumulative impact of the project will enable 190 million tonnes of greenhouse gas emissions annually, which equates to more than 3 times the annual emissions of B.C. and 25 percent of Canada's annual total. By any reasonable measure, this is a large amount of greenhouse gas emissions for one project, a significant cumulative impact on the global climate, and a significant detriment to the carbon budget we know we must stay below to avoid dangerous climate change.

17888. As a coastal community, Metro Vancouver will be susceptible to numerous climate impacts and the associated costs. And as a unique watershed, we will also be subject to the consequences of the drift of those air contaminants.

17889. As a result of this application that is before this Panel, the citizens of the lower mainland and Metro Vancouver will be once again asked to bail out Trans Mountain as they absorb the cost both in terms of local health consequences and adaptions to climate change and consequences.

17890. I reiterate in summary. Metro Vancouver's Board has clearly expressed that they are opposed to this project. That is a Board of some 38

members representing 23 different local governments and a First Nation within the lower mainland area.

17891. Second, the application that has been submitted by Trans Mountain is incomplete, contains significant errors, and fails to consider essential criteria. From an environmental perspective, the consequences are that the project would negatively impact sensitive ecosystems in the region, fails to avoid impacting critical habitat, and has unaccepted impacts in terms of local air quality as well as greenhouse gas emissions and climate impacts. It is Metro Vancouver's position that the project must not be approved.

17892. While we do not support the project, we recognize that the NEB is required to set out conditions it considers necessary or desirable in the public interest should the project go ahead. To that end, Metro Vancouver's written argument includes Metro Vancouver's analysis of the draft conditions and proposed additional conditions.

17893. Although Metro Vancouver has provided an analysis of the draft conditions, we submit that the addition of conditions does not cure the issues set out here today.

17894. Thank you, Mr. Chairman, and Panel.

--- (A short pause/Courte pause)

17895. **THE CHAIRMAN:** Mr. Hildebrand, the Panel have no questions right now. That's not a sign that we're not in any more for -- your evidence is -- you've placed in front of us, your written evidence and then your full summary argument, has answered any questions that the Panel had at the moment.

17896. So with that, we thank you for attending this evening and for your presentation.

17897. We will reconvene at nine o'clock tomorrow morning and hear from the Upper Nicola, followed by the Burnaby Residents Opposing Kinder Morgan Expansion Project, followed by the Shackan Indian Band.

17898. We're adjourned until 9:00 a.m. tomorrow morning.

--- Upon adjourning at 7:13 p.m./L'audience est ajournée à 19h13