

COUNCIL CORRESPONDENCE UPDATE TO JANUARY 3, 2024 (8:30 a.m.)

Correspondence

- (1) December 14, 2023, regarding “Feedback - 380 Klahanie Court”**
- (2) West Vancouver Chamber of Commerce, December 20, 2023, regarding Holiday Events**
- (3) 2 submissions, December 21, 2023 and January 2, 2024, regarding Amendment to Animal Control and Licence Bylaw No. 4545, 2008 and Long-Term Dog Strategy in West Vancouver**
- (4) December 22, 2023, regarding “Re: Place for Sport engagement”**
- (5) (8 submissions), December 23, 2023 - January 2, 2024, regarding Various News Articles**
- (6) D. Marley, December 30, 2023, regarding “DWV’s proposed Code of Conduct - inappropriate roles”**
- (7) My Sea to Sky, December 30, 2023, regarding “FW: Review of FortisBC’s two Waste Discharge Authorization applications”**
- (8) January 2, 2024, regarding “West Van Application”**

Correspondence from Other Governments and Government Agencies

- (9) P. Weiler, M.P. (West Vancouver-Sunshine Coast-Sea to Sky Country) (2 submissions), December 20 and 29, 2023, regarding Federal Programs and Initiatives**

Responses to Correspondence

No items.

From: s. 22(1)
Sent: Thursday, December 14, 2023 10:07 PM
To: correspondence
Cc: Lisa Berg
Subject: [SUSPECTED SPAM] Feedback - 380 Klahanie Court

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Dear Lisa,

A quick note with feedback on this proposal. I would be fine with the two 6 storey apartments, but not the 24-storey tower. We should not be cramming yet another tower into this small area - there are already 4+!

Although in principle obviously we need more density, we also need the infrastructure to support it first, but this does not exist. The bridge and Capilano are already a bottleneck. If bridge traffic is backed up sometimes we can't even get onto s.22(1) to s.22(1) because the turn lanes are blocked by cars trying to turn right onto Marine!

The primary need is for a rapid transit option like a Skytrain extension, which we should **already** have before even considering cramming thousands more residents and several hundred more cars into this small area - plus far more local transit (bus). I know GVRD is discussing a skytrain extension, but it's 10 years away and in the meantime we'll all just be suffering from yet more congestion.

I hope that makes sense. Thanks for your time.

Best
s. 22(1)
s. 22(1) North Vancouver, s. 22(1)

From: West Vancouver Chamber of Commerce <info@westvanchamber.com>
Sent: Wednesday, December 20, 2023 5:02 PM
To: correspondence
Subject: 🎄 Happy Holidays!!

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West Vancouver Chamber of Commerce

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Happy Holidays!!

The staff and board of the The West Vancouver Chamber of Commerce would like to wish you a warm & festive Holiday Season and a happy & prosperous New Year!

CHRISTMAS WASSAIL & BONFIRE

Saturday, December 23rd 3-8pm - Dundarave Beach Park

CoffeeBike and Dos Amigos Taco Truck
refreshments

Bonfire lighting at dusk

3pm - [Los Duendes](#) - psych latin funk

4pm - [Midmay Music](#) - Alternative R&B band

Bonfire lighting at dusk

5pm - Paul Silveria and friends leading Square
Dancing

A VIP 🧑🏻🎅 delivered by RCM-SAR boat

6pm - SongTree folk music

Carolling around the bonfire and more...





Your donation matters

It matters to every patient across Canada. Because it is something we can do today to help others wake up healthier tomorrow.

Upcoming donation events

Congregation Har El
1305 Taylor Way, West Vancouver

Jan 4th , 2024
From 1.00 pm - 7.45 pm.



To book an appointment with your PFL team, open the camera on your mobile device and scan the QR code.
Or book now at blood.ca

Together, we are Canada's Lifeline

For more information, contact chris-loat@shaw.ca

Proud partners:



BC Ferries is supporting this Canadian Blood Services donation event with complimentary ferry travel vouchers for those who donate. The West Vancouver Rotary Club will distribute these vouchers to residents of the Sunshine Coast only who donate blood on the day of event. Carpooling is encouraged.



Upcoming Blood Donor Clinic - January 4th, 2024

Click [HERE](#) to book a donation

For more information, please contact Christopher Loat at chris-loat@shaw.ca

*Click image enlarge and for QR Code



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Our mailing address is:

West Vancouver Chamber of Commerce
2235 Marine Drive
West Vancouver, Bc V7V 1K5
Canada

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From: s. 22(1)
Sent: Thursday, December 21, 2023 3:21 PM
To: correspondence
Cc: Mark Sager; Christine Cassidy; Nora Gambioli; Peter Lambur; Scott Snider; Sharon Thompson; Linda Watt
Subject: Dogs on Centennial Seawalk

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Dear Mayor and Council,

We write to express our extreme disappointment in your adoption of the bylaw that now allows dogs on the Centennial Seawalk. This Seawalk is a much loved walkway that is a highlight of our municipality. It was always a pleasure to see it open to people of all ages and states of mobility, especially to see many seniors using the Seawalk, perhaps in a wheelchair, using a cane, walking sticks or a walker, or being helped along by others in their limited state of mobility. The opening of the Seawalk to dogs will undoubtedly severely restrict the ability of such residents to use this beloved walkway!

We are at a loss as to why you would adopt this bylaw when there are so many seniors in this municipality who may have no other place to enjoy a nice flat and safe place to walk. As s.22(1) residents of West Vancouver who live fairly close to the Seaview Trail in the s. 22(1) area, we used to walk on that path until we could no longer do this because of aggressive behaviour from dogs. In our last walk there, in less than an hour we had nine very unpleasant incidents where dogs approached in a threatening manner, including an aggressive large dog which jumped high up on my wife and would have knocked her over if I had not been there to hold her up. To add further insult, the rude dog owner then told her this was no problem since her dog was just being "friendly". Since that day we have not used this walk as we feel unsafe due to owners not controlling their dogs. As the area around our home is too hilly to be walkable, the Centennial Seawalk was a safe and very pleasant place to walk. Now the safe use of this walkway has been taken away from us too!

Notwithstanding that dogs are to be on a leash, with long retractable leashes there is often a tripping hazard and unfortunately many dog owners seem oblivious to this problem. The bylaw does not seem to place any limits on retractable leashes. Seniors can easily be knocked over when they are jumped on or pushed by a "friendly" dog. With the large number of seniors who like to use the Seawalk, there will now be a much higher chance of falls and broken bones. Fractured bones are especially serious for seniors. We encourage the Mayor and Council to do some simple investigation into the number of people who die within a year after a hip fracture – the statistics are horrendous. For example, CNN Health reports that one in three adults age 50 and over will die within one year of suffering a hip fracture. How will you know how many people are hurt (many possibly quite seriously) when they are jumped on or pushed over by these "friendly" dogs or when they trip on an extended leash? How will you know how many people of all ages will now stop using the Seawalk since they no longer feel safe?

There needs to be places in the municipality where dog owners can take their dog and enjoy the outdoors. As stated on your website, there are already many such places, including many off-leash areas. Even on the Seawalk, there has been a visible fenced area immediately adjacent to the public walkway, where dogs could go and walk beside their owners. Why was it considered necessary to ruin the relatively safe walkway used by so many seniors just to open up yet another area for dogs?

We all know that when a dog approaches another dog on a walkway, it often starts to interact with the other dog in a manner that could make it very difficult for other people to safely pass. While this is perfectly normal, it is not necessary for this to happen on the Seawalk, especially when there are so many other areas in the municipality where dogs can go.

During such time as dogs are allowed, there needs to be many bylaw officers regularly patrolling the Seawalk to ensure that the rules are followed. Violators should be stiffly fined so that word gets out to others. Unfortunately, it is likely that there is not the budget for these necessary bylaw officers. Even before this new bylaw, there were many people who violated the rules of the Seawalk for things such as no bike riding, no skateboards, etc. Never did we see any bylaw officers enforcing these rules. This will be even more important now with this new bylaw.

In the North Shore News article on November 29 "West Van's Centennial Seawalk goes to the dogs" Mayor Sager is quoted as saying "If it doesn't work, council can very easily change the bylaw back". We sincerely hope that this reversal happens very soon, before there are too many injuries, so that people of all ages and states of mobility can once again enjoy this treasured walkway without being in a state of fear about dogs.

Sincerely,

s. 22(1)

West Vancouver, BC

From: [REDACTED] s. 22(1)
Sent: Tuesday, January 2, 2024 1:22 PM
To: correspondence
Subject: Re: Allowing On lease dogs at the Ambleside sea wall

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Thank you for taking the time to respond to my email and dog concerns in public areas.

Our names are [REDACTED] s. 22(1)

Burnaby BC

[REDACTED] s. 22(1)

Although we have been residing in Burnaby [REDACTED] s.22(1) years, we have had the privilege and enjoyment of walking the Ambleside seawall walk. Up to November 2023 it was very perfect having people and dogs co-existing in the same walkway. UNLEASHED dogs walking in their area and PEOPLE walking the walkway. So tired of all these dog friendly restaurants, shopping malls, hotels, etc, etc. What has happened to society?? We were all FORCED by Municipalities, Doctors, and especially our Governments in 2019 to wear masks and be imprisoned in our own homes, not able to even go to restaurants without apps and not able to have Doctor visits except through FaceTime!! Cleansing was the priority!!! NOW, all hell broke lose! No common sense rules, public bathrooms are pig stalls again, animals able to spread their hair and germs everywhere! Not everyone wants to be walking and accidentally step in dog shit! That's exactly what happened to us because of dirty, disrespectful dog owners! I have nothing against animals but if you want to own a DOG then keep it within your own boundaries and pick up after it. There were no 'pets' allowed in condos at one time. Now buildings have more dogs than people living in them! Who is cleaning up after they are allowed to lick elevator doors and buttons? Or their urine on the public carpets? Who?? The municipalities have become a bunch of snowflakes! Enforce rules and FINE people who disobey them. Make our cities beautiful and enjoyable again and not turn them into dirty slums! After all we the people are the ones that pay taxes and paying your wages!
PS. If things don't improve in our cities regarding this dog insanity, I will organize the largest anti-dog protest you have ever seen.

Respectfully.

Sent from my iPhone

On Jan 2, 2024, at 10:30 AM, correspondence <correspondence@westvancouver.ca> wrote:

Thank you for your correspondence.

The District's Correspondence Policy requires the correspondent's name and civic address in order to be included in a correspondence package. Your name and civic address may be provided in a reply to this email, or you may wish to re-send the correspondence with your name and civic address included.

Please do not hesitate to contact Legislative Services at 604-925-7004 if you have any questions.

With regards,

Sophia Kim
Legislative Services | District of West Vancouver
t: 604-925-7018 | westvancouver.ca

<image007.png>

<image008.png>

<image009.png>

From: Laura Alonzi <lalonzi@westvancouver.ca> **On Behalf Of** Info
Sent: Friday, December 29, 2023 5:36 PM
To: [REDACTED] s. 22(1)
Cc: correspondence <correspondence@westvancouver.ca>
Subject: RE: Allowing On lease dogs at the Ambleside sea wall

We appreciate you spending the time to contact us. I have forwarded your comments to the Legislative Services department for review.

Thank you,

Laura Alonzi

Municipal Hall – District of West Vancouver

<image011.png>

We acknowledge that we are on the traditional, ancestral and unceded territory of the Skwxwú7mesh Úxwumixw (Squamish Nation), səliwətaʔt (Tsleil-Waututh Nation), and xʷməθkʷəy̓əm (Musqueam Nation). We recognize and respect them as nations in this territory, as well as their historic connection to the lands and waters around us since time immemorial.

This email and any files transmitted with it are considered confidential and are intended solely for the use of the individual or entity to whom they are intended. If you are not the intended recipient or the person responsible for delivering the email to the intended recipient, be advised that you have received this email in error and that any use, dissemination, forwarding, printing or copying of this email is strictly prohibited. If you have received this email in error, please notify the sender immediately and delete all copies of this email and attachment(s). Thank you.

From: [REDACTED] s. 22(1)
Sent: Tuesday, December 26, 2023 3:19 PM
To: Info <info@westvancouver.ca>
Subject: Allowing On lease dogs at the Ambleside sea wall

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We went for an enjoyable walk today at Ambleside sea wall. But to my surprise encountered more DOGS than people!!!

Then read on my iPhone that rules have been changed as of November 28,2023. Who decides out of the blue to make these changes??? Not too happy. Too many dogs everywhere. What's happening??? Took too many pictures to attach.

<image012.jpg>

<image013.jpg>

<image014.jpg>

<image015.jpg>

Sent from my iPhone

From: [REDACTED] s. 22(1)
Sent: Friday, December 22, 2023 10:56 AM
To: correspondence; Mark Sager; Christine Cassidy; Nora Gambioli; Peter Lambur; Scott Snider; Sharon Thompson; Linda Watt
Subject: Re: Place for Sport engagement
Attachments: Place for Sport2.pdf

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Dear Mayor and Council,
Please see the attached letter regarding the West Vancouver Place for Sport.

Regards,
[REDACTED] s. 22(1)

On Mon, Oct 16, 2023 at 10:02 AM [REDACTED] s. 22(1) wrote:

Dear Mayor and Council,
Please see the attached letter regarding the West Vancouver Place for Sport request for community engagement.

Regards,
[REDACTED] s. 22(1)

To: Mayor and Council
CC: Correspondence

Subject: West Vancouver Place for Sport.

Dear Mayor Sager

Thank you for taking the time to meet with a group of residents from the [REDACTED] s. 22(1) [REDACTED] back in September and listen to our concerns regarding the impact that the WV Place for Sport will have during and after construction.

Subsequent to that meeting we were pleased to have the opportunity to attend two community open houses for this project. These sessions allowed us to ask questions directly to those delivering the project.

At our September meeting we asked to review any traffic and lighting studies for the project. The request was repeated at the first open house and Jill Lawlor kindly provided a copy of the Traffic and Parking Study dated June 2016, at the second open house. We addressed the lighting concerns at these open house sessions as well.

Finally, thank you to the Mayor, Council and Staff for listening to our traffic concerns and subsequently closing off the intersection of Kings Ave and 17th street. I think I speak for many of us [REDACTED] s. 22(1) [REDACTED] and can say that the closure makes a big difference and we would like to see this become permanent.

Kind Regards,

[REDACTED] s. 22(1) [REDACTED]

[REDACTED] West Vancouver

From: [REDACTED] s. 22(1)
Sent: Saturday, December 23, 2023 1:23 AM
To: Mark Sager; correspondence
Subject: BBC News: Landais Alzheimer - the village where everyone has dementia

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BLOCKEDbbc[.]co[.]uk/news/health-67703848BLOCKED

I thought you might be interested in this.

Warmly,

[REDACTED] s. 22(1)

[REDACTED]
West Van

Scatter JOY, Inspire HOPE, Share LOVE, Seek
PEACE - Kathy Davis Designs

From: [REDACTED] s. 22(1)
Sent: Saturday, December 23, 2023 11:15 PM
To: Mark Sager; correspondence
Subject: CBC News : Seniors' advocates fear a growing wave of homeless people over 60 as stock of affordable housing dwindles

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<https://www.cbc.ca/news/canada/british-columbia/homelessness-b-c-seniors-1.7068381>

[REDACTED] s. 22(1)
West Van

Scatter JOY, Inspire HOPE, Share LOVE, Seek PEACE - Kathy Davis Designs

From: [REDACTED] s. 22(1)
Sent: Sunday, December 24, 2023 11:12 PM
To: Mark Sager; correspondence
Subject: CBC News : Barber gives free haircuts at downtown Hamilton park to those in need. He's paid 'in conversations'

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<https://www.cbc.ca/news/canada/hamilton/barber-gore-park-1.7064309>

[REDACTED] s. 22(1)
West Van

Scatter JOY, Inspire HOPE, Share LOVE, Seek PEACE - Kathy Davis Designs

From: [REDACTED] s. 22(1)
Sent: Monday, December 25, 2023 6:11 PM
To: Mark Sager; correspondence
Subject: CBC News : A check-in program connects British Columbians who are feeling lonely with volunteers

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<https://www.cbc.ca/news/canada/british-columbia/friendly-calls-program-1.7066599>

[REDACTED] s. 22(1)

West Van

Scatter JOY, Inspire HOPE, Share LOVE, Seek PEACE - Kathy Davis Designs

From: [REDACTED] s. 22(1)
Sent: Thursday, December 28, 2023 12:57 AM
To: Mark Sager; correspondence
Subject: CBC News : Climate-fuelled wildfires testing the limits of Canada's aging water bombers

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<https://www.cbc.ca/news/canada/north/water-bomber-wildfire-climate-change-1.7070025>

[REDACTED] s. 22(1)

West Van

Scatter JOY, Inspire HOPE, Share LOVE, Seek
PEACE - Kathy Davis Designs

From: [REDACTED] s. 22(1)
Sent: Tuesday, January 2, 2024 11:04 PM
To: Mark Sager; correspondence
Subject: CBC News : Residents of tent encampment at Grand Parade can now access electricity

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<https://www.cbc.ca/news/canada/nova-scotia/tent-encampment-grand-parade-electricity-generator-1.7072777>

Warmly,

[REDACTED] s. 22(1)

West Van

Scatter JOY, Inspire HOPE, Share LOVE, Seek PEACE -
Kathy Davis Designs

From: s. 22(1)
Sent: Tuesday, January 2, 2024 10:23 PM
To: Mark Sager; correspondence
Subject: BBC News: Kai Zhuang: Cyber kidnapping in US illustrates growing crime trend - In Canada too

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BLOCKEDbbc[.]co[.]uk/news/world-us-canada-67869517BLOCKED

It would be great to know our police are doing what is recommended here to track down these criminals.

Warmly,

s. 22(1)

West Van

Scatter JOY, Inspire HOPE, Share LOVE, Seek PEACE -
Kathy Davis Designs

From: [REDACTED] s. 22(1)
Sent: Tuesday, January 2, 2024 11:08 PM
To: Mark Sager; correspondence
Subject: CBC News : Getting money back after being scammed is extraordinary feat, anti-fraud experts say

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<https://www.cbc.ca/news/canada/nova-scotia/millions-in-restitution-issued-fraction-paid-nova-scotia-1.7071323>

Warmly,

[REDACTED] s. 22(1)

West Van

Scatter JOY, Inspire HOPE, Share LOVE, Seek PEACE -
Kathy Davis Designs

From: David Marley <domarley52@gmail.com>
Sent: Saturday, December 30, 2023 6:43 PM
To: correspondence
Cc: Mark Sager; Christine Cassidy; Nora Gambioli; Peter Lambur; Scott Snider; Sharon Thompson; Linda Watt; Scott Findlay
Subject: DWV's proposed Code of Conduct - inappropriate roles

CAUTION: This email originated from outside the organization from email address domarley52@gmail.com. Do not click links or open attachments unless you validate the sender and know the content is safe. If you believe this e-mail is suspicious, please report it to IT by marking it as SPAM.

At last reading, the District's proposed Code of Conduct contains a provision which elevates the District's director of communications, a staff position, to the equivalent status of our Mayor as being one of two "official spokespersons" for the District. This simply can't be permitted. In fact, no unelected official ought to be permitted to occupy such a role.

Similarly, media interviews by unelected officials ought to be strictly verboten. Case in point appears on page A3 of today's edition of the Vancouver Sun, under the bold headline "Metro's water consumption is 'just too high'." So asserts Metro's water services director as part of an apparently lengthy interview. As best I can tell, this individual is a senior member of the Metro Vancouver staff and not an elected official.

Quite apart from it being utterly inappropriate for unelected officials to participate in media interviews, they most definitely ought not to be offering their opinions on matters of public policy! It is for Metro Vancouver's elected directors to determine whether our local water consumption is or is not of an acceptable amount during any given time period, and for a designated elected official to communicate such decisions to the public. A definite distinction in roles needs to be identified and enforced.

DWV Mayor and Council ought to ensure no such inappropriate commentary is forthcoming from any of its unelected officials.

I hereby request that my name and contact information not be redacted from this communication.

David Marley

s.22(1)

West Vancouver, BC

s.22(1)

604-926-8994

From: Tracey Saxby <tracey@myseatosky.org>
Sent: Saturday, December 30, 2023 8:09 PM
To: correspondence
Subject: FW: Review of FortisBC's two Waste Discharge Authorization applications
Attachments: 2023-12-30 MS2S to BCER re Review of FortisBC's WDA applications.pdf; 2023-12-30 Draft review of FortisBC's WDA applications by Dr Vicki Marlatt.pdf

CAUTION: This email originated from outside the organization from email address tracey@myseatosky.org. Do not click links or open attachments unless you validate the sender and know the content is safe. If you believe this e-mail is suspicious, please report it to IT by marking it as SPAM.

Please see the correspondence below and attached. The email address we had on file to contact Mayor and Council at the District of West Vancouver was not valid.

Best Regards,

Tracey Saxby
 Executive Director
 My Sea to Sky
 Cell: +1 (604) 892-7501
 Email: tracey@myseatosky.org
 Web: BLOCKEDmyseatosky[.]orgBLOCKED

We respectfully acknowledge that we work in the traditional, unceded territories and ancestral lands of the xʷməθkʷəy̓əm (Musqueam), Sk̓wx̓wú7mesh (Squamish), and Sel̓ilwítulh (Tsleil-Waututh) Nations.

From: Tracey Saxby <tracey@myseatosky.org>
Sent: December 30, 2023 7:57 PM
To: Waste.Management@bc-er.ca; egp@fortisbc.com
Cc: consultation_rightsandtitle@squamish.net; ministre-minister@ec.gc.ca; DFO.Minister-Ministre.MPO@dfo-mpo.gc.ca; jonathan.wilkinson@parl.gc.ca; 'Patrick - M.P.' <Patrick.Weiler@parl.gc.ca>; premier@gov.bc.ca; env.minister@gov.bc.ca; EMLI.minister@gov.bc.ca; Bowinn.Ma.MLA@leg.bc.ca; jordan.sturdy.mla@leg.bc.ca; nicholas.simons.MLA@leg.bc.ca; board@slrd.bc.ca; info@slrd.bc.ca; info@scrd.ca; council@squamish.ca; MayorandCouncil@westvancouver.ca; mayorandcouncil@gibsons.ca; mayorandcouncil@bimbc.ca; council@lionsbay.ca; info@whistler.ca; corporate@whistler.ca; Kelly.Wintemute@gov.bc.ca; Arvind.Saraswat@gov.bc.ca; 'Tracey Saxby' <tracey@myseatosky.org>; 'Eoin Finn' <eoin@myseatosky.org>; rhiannon@myseatosky.org; 'Ruth Simons' <howesoundbri@gmail.com>
Subject: Review of FortisBC's two Waste Discharge Authorization applications

To whom it may concern,

Please see the attached correspondence regarding FortisBC's two applications to the BC Energy Regulator to discharge effluent into the Squamish River and Átl'ka7tsem / Howe Sound.

Sincerely,

Tracey Saxby
 Executive Director
 My Sea to Sky

Cell: +1 (604) 892-7501

Email: tracey@myseatosky.org

Web: BLOCKEDmyseatosky[.]orgBLOCKED

We respectfully acknowledge that we work in the traditional, unceded territories and ancestral lands of the x^wməθk^wəyəm (Musqueam), Skwxwú7mesh (Squamish), and Selíiwitlh (Tseil-Waututh) Nations.



Saturday 30th December, 2023

To:

Regional Director
Environmental Protection at Environmental Stewardship
British Columbia Energy Regulator
6534 100th Ave., Fort St. John, B.C., V1J 8C5

Sent via email to: Waste.Management@bc-er.ca and egp@fortisbc.com

RE: Review of FortisBC's two Waste Discharge Authorization applications

To whom it may concern,

FortisBC has submitted two Waste Discharge Authorization (WDA) applications to the B.C. Energy Regulator (BCER) for the discharge of wastewater associated with the construction of the Eagle Mountain to Woodfibre Gas Pipeline and Tunnel under the Squamish estuary. Discharge is anticipated to occur for three years, at an average daily rate of 515 m³ during construction and 2,700 m³ during hydrostatic testing at the BC Rail Site; and at an average daily rate of 1,500 m³ during construction at the Woodfibre site.

Attached, please find an in-depth draft report authored by Dr. Vicki Marlatt, Associate Professor of Environmental Toxicology at Simon Fraser University, documenting significant concerns with the applications. It is her professional assessment that, if these two WDAs are approved, there is a high risk of cumulative, long-term adverse effects on aquatic life in the Squamish River and Átl'ka7tsem / Howe Sound.

To briefly summarize the key findings of the report:

LACK OF CUMULATIVE EFFECTS ASSESSMENT

Historic, current, and proposed pollution results in a complex mix of contaminants in the Squamish River and Átl'ka7tsem / Howe Sound that includes metals, organic chemicals, hydrocarbons, and hundreds of other toxic substances. However, there is no analysis of the potential cumulative effects of FortisBC's proposed effluent discharge at the BC Rail and Woodfibre sites when combined with existing effluent discharge from the Squamish Wastewater Treatment Plant and urban run-off.

FortisBC has also failed to assess the cumulative impacts of the combined effluent discharge at the BC Rail Site and the Woodfibre Site in conjunction with Woodfibre LNG's third application to



discharge an average daily rate of 1,600 m³ of effluent for four years during construction at the Woodfibre site.

COMBINED EFFLUENT DISCHARGE COULD EXCEED WATER QUALITY GUIDELINES

The combined effluent discharge from FortisBC's two WDA applications and Woodfibre LNG's WDA application could result in contaminant concentrations that exceed BC's long-term water quality guidelines for the protection of aquatic life for pH, metals, total suspended solids, hydrocarbons, and other toxic substances.

Woodfibre LNG's WDA application proposes to discharge heavy metals (copper, lead, zinc, and vanadium), total suspended solids, and pH at levels that exceed BC's water quality guidelines. While FortisBC's WDA applications are proposing to discharge effluent within BC's water quality guidelines, these combined effluent discharges will increase the total concentration of these pollutants with a high probability of causing adverse effects on aquatic wildlife.

ACTUAL EFFLUENT DISCHARGE IS 3.4 TIMES HIGHER THAN WHAT WAS EVALUATED

Appendix D of FortisBC's WDA application at the BC Rail site assesses the potential impact of effluent discharge on fish and fish habitat, based on a discharge rate of 150 m³ / day for ten hours per day. However, FortisBC has applied for a wastewater discharge rate of 515 m³/day, 24 hours per day, 7 days per week. This is approximately 3.4 times higher than the discharge rate evaluated in Appendix D, and 60% longer in duration on a daily basis. There is also a miscalculation of the discharge rate used to assess impacts on aquatic life in the Squamish River that is incorrect by two orders of magnitude. A revised assessment is necessary to determine if FortisBC's proposed effluent discharge into the Squamish River will have adverse effects on the survival of fish and other aquatic wildlife.

HISTORY OF TOXIC CONTAMINATION AT WOODFIBRE AND BC RAIL SITES

The Woodfibre site is historically contaminated with toxic heavy metals and organic chemicals (i.e., hydrocarbons, dioxins, and furans) from a former pulp mill that operated from the early 1900's to 2006.

The BC Rail site was used as a dumping ground for oil and other toxic substances, and quarterly groundwater monitoring reveals the presence of several metals (beryllium, cobalt, chromium, iron, and zinc) and polycyclic aromatic hydrocarbons (PAHs) at concentrations greater than BC Water Quality Guidelines.

These contaminants are persistent and resistant to degradation, and it is probable that the disturbance of these existing contaminants during construction will add to the pollutant load in



the Squamish River and Howe Sound and increase the risks of adverse health effects on exposed aquatic life in these waters.

UPDATED WATER QUALITY GUIDELINES AVAILABLE

Both of FortisBC's WDA applications were published in 2022 and reference 2021 BC Water Quality Guidelines, however these guidelines were updated in 2023 and should be considered when evaluating these applications.

LACK OF MONITORING TO VERIFY IMPACTS TO ECOLOGICAL FUNCTION

No environmental monitoring studies of aquatic life are required to verify that the ecological functioning of the Squamish River or Howe Sound receiving environment is or is not impaired by these WDA applications.

MISSING MONITORING OF POTENTIAL TOXIC SUBSTANCES

During the treatment of effluent at the BC Rail and Woodfibre Sites, two chemicals—chitosan and Haloklear BHR-P50—will be added during water treatment during flocculation. While chitosan appears to have low acute toxicity, chronic toxicity data of chitosan on aquatic organisms is lacking. Haloklear BHR-P50 is classified as hazardous and it is recommended to avoid release to the environment. Concentrations of both Chitosan and Haloklear BHR-P 50 in wastewaters discharged are not provided in either of FortisBC's WDA applications, and there is no plan to monitor levels of these chemicals in wastewater effluent nor in receiving waters.

NO PLAN FOR POTENTIALLY ACID GENERATING ROCK

As FortisBC excavates the rock portion of the tunnel, they are proposing to store potentially acid generating rocks in a stockpile at the upper quarry on the Woodfibre site. Acid rock drainage from Britannia Mine once made Howe Sound one of the most polluted areas in North America.

Acid rock drainage refers to rock that contains significant concentrations of sulfide minerals that can react with water, air, and bacteria to generate acidic and metal-laden effluent. When acid rock drainage mixes with groundwater, surface water, or soil, there is a high risk of harmful effects on exposed humans, animals and plants, and a decrease in biodiversity.

FortisBC's WDA application for the Woodfibre site lacks specific plans for the monitoring and mitigation of potentially acid generating rock drainage at the Woodfibre Site. A thorough and clear plan is necessary in order to fully assess this application.



RESUSPENSION OF SEABED SEDIMENTS CONTAINING DIOXINS AND FURANS

Resuspension of seabed sediments and water column mixing due to disturbance by LNG Carriers and associated tugboats have not been considered in either of the two WDA applications at the Woodfibre Site. Aerial videos of LNG carriers docking demonstrate water column disturbance and resuspension of sediments. Therefore, it is probable that large LNG carriers docking will result in mixing of deeper waters with the foreshore waters of Howe Sound near the Woodfibre LNG site, as well as increased turbidity, total suspended solids, dissolved solids, and the reintroduction of sediment-bound pollutants into the water column. Movement of pollutants has not been considered in any of the three WDA applications but such consideration is prudent in light of the high levels of dioxins and furans from two pulp mills, which have made crabs and bivalves in most of Átl'ka7tsem / Howe Sound unsafe for human consumption since the 1980's and have led to restrictions for harvesting them.

SUMMARY OF RECOMMENDATIONS

- Both of FortisBC's WDA applications reference 2021 BC Water Quality Guidelines and there are now updated guidelines published in 2023 that should be considered.
- Perform a cumulative impact study of FortisBC's two WDA applications **and** Woodfibre LNG's WDA application to a) determine the risk of combined hazards of multiple contaminants on aquatic life; and b) evaluate the combined impacts of historic, current, and proposed pollution on Howe Sound's ecosystem. This should include quantification of the sum of each predicted pollutant concentration in all three effluents, followed by assessing the risks of groups of pollutants with similar toxicological effects.
- Ensure **cumulative** contaminant concentrations from the **three WDA applications** do not exceed BC long-term water quality guidelines for pH, metals, organic pollutants, total suspended solids, hydrocarbons, and other toxic substances to ensure the protection of aquatic life in marine waters.
- Require the proponent to measure concentrations of Chitosan and Haloklear BHR-P 50 in wastewater effluents and in receiving waters weekly to monitor concentrations discharged into the environment. In addition, acute and chronic toxicity testing with invertebrate and fish species for these wastewaters discharged at a range of dilutions should be part of routine parameters measured under these WDAs.
- Require environmental effects monitoring of intertidal and subtidal biota to monitor fish and ecosystem health prior to and during the project.



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- Require the proponent to provide clarity about potential disturbance at the water sediment interface in the Squamish estuary, and to provide mitigation plans if sediment disturbance is likely to occur.
- Require the proponent to estimate noise levels from construction of the tunnel under the Squamish estuary and evaluate the potential impact on biota. Require ongoing monitoring of noise levels at both project sites during construction.
- Require modeling of resuspension of seabed sediments and water column mixing predicted with LNG carrier and tugboat movement at the Woodfibre site, and consider the potential human health and environmental impacts of remobilizing historic and proposed pollutants, in particular, dioxins and furans.
- Conduct a multi-season effluent plume study to verify the geographic extent of contamination for both WDA applications.
- Require ongoing monitoring of groundwater drawdown and plume movement at the BC Rail Site, and a plan for enhanced wastewater treatment if necessary to ensure effluent quality is achieved.
- Require the proponent to provide a clear description of the water source and evidence that it is not contaminated to assess the hydrostatic testing phase of this project.
- Conduct more comprehensive sampling at the BC Rail Site to better understand the contaminants present.
- Require the proponent to clarify the disparity between their proposed discharge rate of 515 m³/day and the 150 m³/day discharge rate discussed in Appendix D, and conduct modeling to ensure that the proposed rate will not have adverse effects on the ecosystems or human health.
- Require ongoing monitoring of contaminants in fish and shellfish.
- Require additional plant and animal surveys to characterize the aquatic wildlife inhabiting Stream 'X' that may be impacted by the effluent discharge associated with the **FortisBC's WDA application at the Woodfibre Site.**
- Require the proponent to provide a thorough and clear plan for monitoring and mitigating acid rock drainage in order to fully assess **FortisBC's WDA application at the Woodfibre Site.**
- Require the proponent to conduct additional laboratory chronic toxicity tests measuring sub-lethal adverse effects known to affect wildlife health to comprehensively assess the



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longer term impacts of these complex, multi-chemical effluents for both WDAs, as prescribed under the Fisheries Act for metal and diamond mine effluents and pulp mill effluents in Canada.

- Require the proponent to conduct environmental monitoring of wildlife health (i.e., fish and benthic invertebrates) at and downstream of both WDA discharge sites to verify the ecological functioning of these receiving waters has not been impacted as prescribed under the Fisheries Act for metal and diamond mine effluents and pulp mill effluents in Canada.

IN CONCLUSION

We urge you to implement the recommendations identified by Dr. Vicki Marlatt in her review of FortisBC's two applications for Waste Discharge Authorizations. **Approval of these two WDA applications must be withheld until these recommendations are implemented.**

On FortisBC's own website, it states:

- *"We are committed to operating responsibly and mitigating potential environmental impacts",¹ and:*
- *"We believe in leaving the places where we work in the same or better condition."²*

It is our assertion that the WDA applications submitted by FortisBC fail to meet the company's own obligations to mitigate environmental impacts, and that the proponent does not intend to employ the highest environmental standards and apply the precautionary principle regarding impacts to the marine environment.

We are extremely concerned that while the public review of FortisBC's two WDA applications is yet to be completed, the BC Energy Regulator has issued two temporary approvals for FortisBC to discharge effluent under Section 15 of the Environmental Management Act "to enable construction timelines." **This is contrary to the basic principles of public consultation, procedural fairness, and natural justice.** This is even more concerning given the significant concerns identified in the attached report. It appears that the BC Energy Regulator continues to be a captured regulator, where *"industry demands trump public interest."* This is truly reprehensible and results in a loss of public trust in both the regulator and the process.

We reiterate our concerns about the timing of this public engagement process over the holiday season, which limits the ability of the public to meaningfully engage.

¹ FortisBC Talking Energy website (retrieved 2023). [Eagle Mountain - Woodfibre Gas Pipeline Project: Overview.](#)

² FortisBC Talking Energy website (retrieved 2023). [Eagle Mountain - Woodfibre Gas Pipeline Project: Q&As.](#)



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FortisBC took more than two months to respond to requests for additional information to inform our response to both WDA applications, and finally responded on December 15, 2023, when our hired expert was already on vacation. This is unacceptable, and appears to be an attempt by FortisBC to suppress proper public scrutiny and oversight. As a result, the attached report is in draft form only, and we reserve the right to update it.

The District of Squamish, the Squamish Lillooet Regional District, and Howe Sound Biosphere Region have all expressed concern about these proposed wastewater discharge permits, and over 1,040 individuals have sent emails expressing their opposition to these permit approvals. There is clearly significant regional interest in ensuring adequate oversight of FortisBC and Woodfibre LNG to limit pollution of toxic substances into the waters and sediments of the fragile and recovering Átl'ka7tsem / Howe Sound ecosystem.

Átl'ka7tsem / Howe Sound has recently been designated as B.C.'s third UNESCO biosphere, and deserves special attention and oversight.

We urge you to hold FortisBC to the highest standards as you consider its two applications to discharge effluent into Átl'ka7tsem / Howe Sound, and to implement these recommendations.

Please feel free to contact us for further information or clarification.

Sincerely,

s. 22(1)

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Squamish Nation Band Council

The Honourable Steven Guilbeault, Minister of Environment and Climate Change of Canada

The Honourable Diane Lebovillier, Minister of Fisheries and Oceans

The Honourable Jonathan Wilkinson, Minister of Natural Resources and MP for North Vancouver

Patrick Weiler, MP for West Vancouver—Sunshine Coast—Sea to Sky Country

Premier David Eby

MLA Hon. Josie Osborne, Minister of Energy, Mines, and Low Carbon Innovation

MLA Hon. George Heyman, Minister of Environment and Climate Change Strategy

MLA Hon. Bowinn Ma, Minister of Emergency Management and Climate Readiness

MLA Jordan Sturdy, West Vancouver-Sea to Sky

MLA Nicolas Simons, Powell River-Sunshine Coast

Squamish Lillooet Regional District

Sunshine Coast Regional District

Gambier Island Local Trust Area

District of Squamish

District of West Vancouver

Bowen Island Municipality

Village of Lions Bay

Town of Gibsons

Resort Municipality of Whistler

Ruth Simons, Átl'ka7tsem / Howe Sound Biosphere Region

Arvind Saraswat, Project Lead, BC Environmental Assessment Office

Kelly Wintemute, Executive Project Director, BC Environmental Assessment Office

Potential Impacts of FortisBC's Waste Discharge Authorization Applications on the Receiving Environment

Dr. Vicki Marlatt, B.Sc., M.Sc., Ph.D., R.P.Bio.

Associate Professor, Environmental Toxicology

Simon Fraser University

December 30, 2023

DRAFT

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Overview of FortisBC's two Waste Discharge Authorization Applications

FortisBC has submitted two Waste Discharge Authorization (WDA) applications to the B.C. Energy Regulator (BCER) for the discharge of wastewater associated with the construction of the Eagle Mountain to Woodfibre Gas Pipeline (EGP) and Tunnel to supply natural gas for Woodfibre LNG's liquefied natural gas (LNG) export facility near Squamish.

Both Waste Discharge Authorization applications have been made under the Environmental Management Act under permit PE 110163 (Application Number 388398), and are proposed at either end of a 14-foot wide, nine-kilometer tunnel, located at the BC Rail site in Squamish and at the Woodfibre site southwest of Squamish.

FortisBC's WDA application at the BC Rail site proposes to discharge wastewater effluent at an average daily rate of 515 m³ for 24 hours per day during three years of construction followed by 2,700 m³ per day during three to four months of hydrostatic testing. The effluent discharged would be released into the Squamish River ~4 km upstream of Howe Sound.¹

FortisBC's WDA application at the Woodfibre site proposes to discharge wastewater effluent at an average daily rate of 1,500 m³ for 24 hours per day during three years of construction. The effluent discharged would be released into Stream 'X' at the Woodfibre site, ~150 m upstream of Howe Sound.²

This report reviews both applications, which will be referred to throughout as:

- 1. FortisBC's WDA application at the BC Rail Site**
- 2. FortisBC's WDA application at the Woodfibre Site**

Woodfibre LNG has also applied for a third Waste Discharge Authorization application which we reviewed in August 2023. For the purposes of this report, this application will be referred to as:

- 3. Woodfibre LNG's WDA application.³**

¹ FortisBC (2022) Eagle Mountain - Woodfibre Gas Pipeline Project: Technical Assessment Report for Waste Discharge Authorization at the BC Rail Site. Report published 2022-09-07. 22 pp.

² FortisBC (2022) Eagle Mountain - Woodfibre Gas Pipeline Project: Technical Assessment Report for Waste Discharge Authorization at the WLNG Site. Report published 2022-09-07. 23 pp.

³ Woodfibre LNG (2023) Technical Assessment Report for the Woodfibre LNG Export Facility Construction Phase Waste Discharge Authorization. Report published 2023-02-17. 251 pp.

The Átl'ka7tsem / Howe Sound region was designated as Canada's 19th UNESCO Biosphere Region in 2021. The designation was a recognition of the region's biodiversity and fragile environmental recovery. The Átl'ka7tsem/Howe Sound Biosphere Region has been endorsed by the District of Squamish, the Squamish Lillooet Regional District, Provincial authorities, Fisheries and Oceans Canada, Skwxwu7mesh Úxwumixw and other authorities responsible in Átl'ka7tsem / Howe Sound. Any degradation of the marine environment will affect the Biosphere Region's commitment to the highest and best practices for sustainable development.

Questions and Concerns

1) What are the pollution inputs into this area (Squamish River and Howe Sound)?

In addition to the industrial legacy point sources of pollution into Howe Sound, current and proposed significant point source pollution inputs into Howe Sound include:

- community wastewater treatment plant effluent discharge into Squamish River;
- urban run-off via stormwater discharge;
- proposed Woodfibre LNG Waste Discharge Authorization (WDA) application associated with the construction of the liquefied natural gas (LNG) export facility at the Woodfibre site southwest of Squamish;
- two proposed FortisBC Waste Discharge Authorization (WDA) applications related to construction of the Eagle Mountain to Woodfibre Gas Pipeline (EGP) and Tunnel to discharge wastewater during construction of:
 - a tunnel through 4.9 km of potentially acid-generating (PAG) bedrock accessed via the Woodfibre site; and
 - a tunnel through 3.8 km of soft ground under the Squamish estuary in Howe Sound accessed via the BC Rail site.

A. Historical Inputs into Howe Sound

Due to a legacy of industrial activity in Howe Sound, industrial pollution – including metals, organic persistent pollutants, and acids – remains today. The large scale point source pollution inputs began in the early 1900's from two pulp mills, located at Woodfibre and Port Mellon, and the Britannia Copper Mine, whereby decades of water effluents were discharged into Howe Sound containing metals (mainly copper and zinc) and organic persistent chlorinated compounds (mainly dioxins and furans). In addition, a mercury cell chlor-alkali plant was operational during 1964-1991 in the Squamish delta area, producing caustic soda (NaOH) and hydrochloric acid for pulp mills. This caused substantially high levels of mercury in Howe Sound

biota and alkalis, acids, sulphates, and chlorine in receiving waters in the 1970's.⁴ Collectively, this resulted in severe degradation of intertidal and subtidal marine organism health that has been slowly demonstrating recovery based on increased biodiversity and reduced mercury levels in biota within Howe Sound. For example, once mercury scrubbers were implemented at the chlor-alkali plant, mercury biota levels decreased in biota to levels safe for human consumption (i.e., 0.5 mg/kg). Furthermore, intertidal biodiversity recovery took decades to begin to re-establish after the Britannia Mine closure at several sites multiple kilometers away from the point source of copper, zinc, and low pH discharges into Howe Sound.^{5,6}

B. Municipal Wastewater and Stormwater Discharge into Squamish River

The Mamquam wastewater treatment plant (WWTP) discharges primary and secondary sewage effluent into the Squamish River (up to 17,850 m³/day), which then flows into Howe Sound.⁷ Municipal WWTPs release hundreds of chemicals, including contaminants such as metals, salts, nutrients, polycyclic aromatic hydrocarbons (PAHs), polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans, surfactants (i.e., alkylphenol ethoxylates), pesticides, polybrominated diphenyl ethers (PBDEs), polychlorinated biphenyls (PCBs), human hormones, pharmaceuticals, and personal care products (PPCPs; i.e., prescription, over the counter, and veterinary therapeutic drugs for human and animal ailments/diseases, and PCPs such as soaps, deodorants, and cosmetics).⁸ Urban run-off provides a similarly complex contaminant milieu such as tire degradation products, metals, pesticides, gas, and oil products that is released into the storm water system. In the District of Squamish the storm water system has several kilometres of storm systems and hundreds of catch basins/storm drains that maintain the flow of water through culverts, into catch basins, and then into creeks, ponds, rivers (i.e., Squamish River) and the Squamish estuary (which drains into Howe Sound) to avoid localized flooding and keep roadways clear.

⁴ Hoos, L.M. and C.L. Vold 1975. [The Squamish River Estuary. Status of environmental knowledge to 1974](#). Report of the Estuary Working Group, Dept. Environment, Regional Board Pacific Region. Special Estuary Series No. 2: 261 pp.

⁵ Willems, W. 2004. A GIS-approach to assess the impact of two pulp mills (Woodfibre and Port Mellon) on intertidal biodiversity in the Howe Sound region (British Columbia, Canada). Master of Science Thesis. Advanced Studies in Marine and Lacustrine Sciences, Dalhousie University.

⁶ Bard, S.M. 1998. [A biological index to predict pulp mill pollution levels](#). Water Environment Research 70(1): 108-122.

⁷ Opus. 2016. District of Squamish, [Sanitary Sewer Master Plan](#).

⁸ Khan, U., Bloom, R.A., Nicell, J.A., Laurensen, J.P., 2017. [Risks associated with the environmental release of pharmaceuticals on the U.S. Food and Drug Administration “flush list.”](#) Science of The Total Environment 609, 1023–1040.

The District of Squamish discharges treated effluent from the District's Mamquam WWTP to the Squamish River. The Squamish River drains three main watersheds including the Squamish, Cheakamus, and Mamquam Rivers. The existing outfall and a proposed location for a new outfall are located ~1 km downstream of the confluence of all three rivers in the lower reaches of the Squamish River. The existing outfall is described as extending approximately 5.8 metres (m) offshore from the east bank of the river and discharging to a depth of approximately 1.2 m below average low water level. The outfall is observable from the riverbank during low river flow conditions, and is located approximately 1.5 km upstream of the BC Rail Site.

According to the District of Squamish (squamish.ca) the WWTP services more than 23,000 people in Squamish daily, and treats ~3.4 billion litres of wastewater (or sewage) every year. Wastewater is treated using either primary or secondary treatment processes; primary treatment removes materials that float or readily settle out by gravity as well as dissolved organic materials and secondary treatment uses biological processes to remove more material (i.e., small suspended solids and soluble organic materials). Currently WWTPs in Canada are required to treat conventional organic and bacteriological contaminants, including suspended solids, metals, and nutrients (mainly phosphorus and nitrogen).^{9,10} At a minimum, all treatment plants are designed to address two crucial components of wastewater: (1) total suspended solids (TSS); and (2) the biochemical oxygen demand (BOD).¹¹ Based on recent water quality monitoring downstream of the Squamish WWTP for human coliforms, metals, and polycyclic aromatic hydrocarbons, the main contaminants exceeding water quality guidelines appear to be ammonia, nitrite, coliforms (*Escherichia coli*), coliforms (thermotolerant), *Enterococcus*, aluminum and iron.¹² The District's sewage treatment plant is authorised under a permit (PE-01512) issued by the BC Ministry of Environment. The permit was first issued in 1972 and was last amended on October 6, 2017. The permit authorizes the following: a maximum discharge rate of 17,850 m³/d; an effluent 5-day biochemical oxygen demand (BOD5) concentration of ≤ 30 mg/L; an effluent total suspended solids (TSS) concentration of ≤ 40 mg/L. The effluent must also pass a fish bioassay, which is defined as the LT50 96 hour rainbow trout bioassay.

⁹ Sonune, A and R Ghatge. 2004. [Developments in Wastewater Treatment Methods](#). Desalination 167(1): 55-63.

¹⁰ Crini, G and E Lichtfouse, 2018. [Wastewater treatment: an overview](#), chapter 1. In: Crini G, Lichtfouse E (eds) Green adsorbents for pollutant removal—fundamentals and design, environmental chemistry for a sustainable world, vol 1. Springer, Berlin, pp 1–21.

¹¹ Biochemical Oxygen Demand; Environment and Climate Change Canada, 2017.

¹² Great Pacific Engineering & Environment, 2023. Environmental Impact Study District of Squamish – Squamish River Outfall.

Many of the approximately 30,000 synthetic chemicals registered for use in Canadian commerce as well as other biologically active human excretory products (e.g., hormones) enter WWTPs and are not degraded and discharged into the receiving environment in primary and secondary WWTP. For example, several contaminants have been measured in sewage effluents, such as: metals, salts, nutrients, polycyclic aromatic hydrocarbons (PAHs), polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans, surfactants (i.e., alkylphenol ethoxylates), pesticides, polybrominated diphenyl ethers (PBDEs), polychlorinated biphenyls (PCBs), human hormones, pharmaceuticals and personal care products (PPCPs; i.e., prescription, over the counter, and veterinary therapeutic drugs for human and animal ailments/diseases, and PCPs such as soaps, deodorants, and cosmetics).¹³ It is widely accepted that the major source of pharmaceuticals and personal care products (PPCPs) in receiving aquatic environments is due to the incomplete and inconsistent removal processes in primary and secondary WWTPs.¹⁴ For most contaminants discharged from WWTPs no environmental quality guidelines exist and many are continuously discharged into receiving waters.¹⁵ Exposure to these cocktails of chemicals, pharmaceuticals, and human excretory biological products poses a risk to aquatic wildlife downstream of WWTP facilities, and several studies since the early 1990's have documented the adverse effects of WWTP effluents in fish and invertebrates.^{16,17,18}

C. Woodfibre LNG's Waste Discharge Authorization (WDA) Application

Woodfibre LNG (WLNG) has submitted a Waste Discharge Authorization (WDA) application to the B.C. Energy Regulator (BCER) for the discharge of water associated with the construction of a liquefied natural gas (LNG) export facility near Squamish, B.C.¹⁹ Despite the treatment of

¹³ Metcalfe, C. D., Bayen, S., Desrosiers, M., Muñoz, G., Sauvé, S., & Yargeau, V. (2022). An introduction to the sources, fate, occurrence and effects of endocrine disrupting chemicals released into the environment. *Environmental research*, 207, 112658.

¹⁴ Ebele, A.J, MA Abdallah, and S Harrad. 2017. Pharmaceuticals and personal care products (PPCPs) in the freshwater aquatic environment. *Emerging Contaminants* 3(1): 1-16.

¹⁵ [Food and Drugs Act F-27](#), 1985.

¹⁶ Ings, JS, MR Servos, and MM Vijayan. 2011. [Exposure to municipal wastewater effluent impacts stress performance in rainbow trout](#). *Aquatic Toxicology* 103:85-91.

¹⁷ Matthiessen, P, JR Wheeler, and L Weltje. 2018. A review of the evidence for endocrine disrupting effects of current-use chemicals on wildlife populations. *Crit Rev Toxicol* 48(3):195-216.

¹⁸ Purdom, CE, PA Hardiman, VVJ Bye, NC Eno, CR Tyler and JP Sumpter. 1994. Estrogenic Effects of Effluents from Sewage Treatment Works. *Chemistry and Ecology* 8(4).

¹⁹ Woodfibre LNG (2023) Technical Assessment Report for the Woodfibre LNG Export Facility Construction Phase Waste Discharge Authorization. Report published 2023-02-17. 251 pp.

effluent in WWTPs on site, Woodfibre LNG predicts that, based on mathematical models, most metals, hydrocarbons, and total suspended solids (TSS) will be continuously released at levels below or at water quality guidelines aimed to be protective of marine life. However, four heavy metals (copper, lead, zinc and vanadium) and total suspended solids are predicted to be discharged into Howe Sound at concentrations *exceeding* the lowest applicable water quality guideline under the highest effluent discharge scenario predicted by Woodfibre LNG.

In addition, Woodfibre LNG is requesting to discharge effluents into Howe Sound with a pH range from 5.5 to 9.0, which exceeds the lower and upper limits of the long-term water quality guidelines for pH for the protection of marine aquatic life. British Columbia's long-term water quality guidelines are pH 7.0 to 8.7 for marine waters and pH 6.5 to 9.0 for freshwater. This pH range *also* exceeds the less conservative range of pH values allowable in metal or diamond mine effluents discharged into receiving waters as specified in the *Metal and Diamond Mining Effluent Regulations* [MDMER, Part 1, Section 4(1)(b)] under the *Fisheries Act*, which specifies the acceptable pH range of the effluent to be pH 6.0 to 9.5.

D. FortisBC's Waste Discharge Authorization (WDA) application at the BC Rail Site

FortisBC has applied to discharge effluent from construction activities for the Eagle Mountain to Woodfibre Gas Pipeline project (EGP) as outlined in FortisBC's application for Waste Discharge Authorization under the Environmental Management Act under permit PE 110163.²⁰ The effluent discharged would be released into the Squamish River ~4 km upstream of Howe Sound. The proposed WDA application states that effluent will contain metals, hydrocarbons (i.e., polycyclic aromatic hydrocarbons (PAHs)), and water quality parameters (i.e., pH, temperature, dissolved oxygen) at or below B.C. Water Quality Guidelines. The proposed WDA entails monitoring at weekly or monthly intervals to verify B.C. Water Quality Guidelines are met for these contaminants and water quality parameters. Therefore, some uncertainty in the levels of contaminants/quality of water discharged and the potential for exceedances of guidelines in discharged water may occur from one week up to one month in duration between monitoring prior to mitigation measures.

The BC Rail Site is part of a larger area owned by BC Rail (Property) that is the subject of a Risk-Based Certificate of Compliance that was issued May 16, 2016. The EGP Project associated with the Squamish River Tunnel being carried out on the B.C. Rail Site is leasing a portion of the Property located on the south end. There were four areas of environmental concern (AEC) identified in the area where the BC Rail Site is located and an additional two AEC located north and upgradient to the BC Rail Site. Based on quarterly groundwater quality monitoring

²⁰ FortisBC (2022) Eagle Mountain - Woodfibre Gas Pipeline Project: Technical Assessment Report for Waste Discharge Authorization at the BC Rail Site. Report published 2022-09-07. 22 pp.

conducted in the area of the BC Rail Site between 2020 and 2022, several metals (beryllium, cobalt, chromium, iron and zinc) and PAHs are present at concentrations greater than BC Water Quality Guidelines.

E. FortisBC's Waste Discharge Authorization (WDA) application at the Woodfibre Site

FortisBC has applied to discharge effluent from construction activities for the Eagle Mountain to Woodfibre Pipeline project as outlined in FortisBC's application for Waste Discharge Authorization under the Environmental Management Act under permit PE 110163.²¹ This effluent would be released into Stream 'X' at the Woodfibre site, and would contain metals, hydrocarbons (i.e., PAHs), and water quality parameters (i.e., pH, temperature, dissolved oxygen) at or below BC Water Quality Guidelines. Stream 'X' has been classified as a non-fish bearing stream as per the Environmental Protection and Management Guideline (EPMG),²² and discharge of effluent into the Stream 'X' would flow downhill into Howe Sound (~150 m) or infiltrate the ground within Stream 'X'. Part of the proposal entails monitoring at weekly or monthly intervals to verify BC Water Quality Guidelines are met for these contaminants and water quality parameters. Therefore, some uncertainty in the levels of contaminants/quality of water discharged and the potential for exceedances of guidelines in discharged effluent may occur from one week up to one month in duration between monitoring prior to mitigation measures.

The water quality of the discharge stream (stream X) and Mill Creek and the groundwater along the Tunnel alignment varies based on studies conducted by Tetra Tech Canada Inc. in 2021 (FortisBC, 2022b). For example, exceedances in August 2021 were observed with the majority of watercourses sampled found to have exceedances for temperature, pH, alkalinity, and dissolved copper. This was similar in November of 2023 with one additional metal, dissolved aluminum, exhibiting exceedances.

²¹ FortisBC (2022) Eagle Mountain - Woodfibre Gas Pipeline Project: Technical Assessment Report for Waste Discharge Authorization at the WLNG Site. Report published 2022-09-07. 23 pp.

²² British Columbia Oil and Gas Commission (BC OGC). 2018. Environmental Protection and Management Guideline, Version 2.7. 126 pp.

2) What are the cumulative impacts of these three effluent discharge applications by Woodfibre LNG and FortisBC? Is it possible to compile the total amount of effluent, total number of pollutants, and should these three discharge sites be evaluated as one application?

Cumulative risk assessment is defined as the analysis, characterization, and possible quantification of the combined risks to health or the environment from multiple agents or stressors,²³ and this should be considered when assessing the cumulative impacts of these three Waste Discharge Authorizations applications by Woodfibre LNG and FortisBC due to the proximity of their discharge locations into Howe Sound. Several cumulative risk assessments and protocols/methods are available and have been conducted in Canada.^{24,25} One of the key components of a cumulative risk assessment is that substances that have a common adverse effect can be grouped together for evaluation of aggregate exposures of multiple agents and cumulative risks. For example, several metals (i.e., copper, zinc, iron) dissolved in water exert the same toxic mode of action in fish—during short-term excess metal exposure, metals compete with normal ion uptake at the gill causing an imbalance of plasma ions, gill cell death/malfunction, respiratory distress and ultimately lead to cardiovascular failure and death.²⁶

The cumulative impacts of these three effluent discharge applications—namely, Woodfibre LNG’s WDA application, **FortisBC’s WDA application at the BC Rail Site**, and **FortisBC’s WDA application at the Woodfibre Site**—will be increased concentrations and increased risks of adverse effects of several persistent and toxic pollutants in aquatic life in Howe Sound and the Squamish River. Indeed, each of these effluents will contain similar pollutants, such as: metals; hydrocarbons (i.e., polycyclic aromatic hydrocarbons, PAHs) and wastewater quality parameters (i.e., pH, temperature, dissolved oxygen) outside of limits safe for aquatic life. Therefore, a cumulative risk assessment based on quantifying the sum of each predicted pollutant concentration discharged in all three effluents and individual hazards can be conducted

²³ [US EPA] United States Environmental Protection Agency. 2003. Framework for Cumulative Risk Assessment. U.S. EPA/ORD/NCEA, Washington, DC. EPA/600/P-02/001F.

²⁴ Health Canada, 2018, [Cumulative Health Risk Assessment Framework](#), Pest Management Regulatory Agency, Science Policy Note, SPN2018-02.

²⁵ Health Canada and Environment Canada, 2015. [Proposed Approach for Cumulative Risk Assessment of Certain Phthalates under the Chemicals Management Plan](#).

²⁶ Landis, W.G., R.M. Sofield, and Ming-Ho Yu. 2018. Introduction to Environmental Toxicology: Molecular Substructures to Ecological Landscapes, 5th Edition, CRC Press, 2018 ISB 1498750427, 9781498750424, pp 258.

followed by assessing the risks of groups of pollutants with similar toxicological effects (e.g., metals, hydrocarbons).

A cumulative risk assessment is particularly appropriate for the two proposed WDAs at the Woodfibre site due to both effluent discharge locations either directly or indirectly entering the foreshores of Howe Sound at the Woodfibre LNG site. Woodfibre LNG's WDA application predicts that four heavy metals (copper, lead, zinc, and vanadium) and total suspended solids will be discharged into Howe Sound at concentrations *exceeding* the lowest applicable water quality guideline under the highest effluent discharge scenario predicted by Woodfibre LNG. In addition, Woodfibre LNG is requesting to discharge effluents into Howe Sound with a pH range from 5.5 to 9.0, which exceeds the lower and upper limits of the long-term water quality guidelines for pH for the protection of marine aquatic life. British Columbia's long-term water quality guidelines are pH 7.0 to 8.7 for marine waters and pH 6.5 to 9.0 for freshwater. This pH range *also* exceeds the less conservative range of pH values allowable in metal or diamond mine effluents discharged into receiving waters as specified in the *Metal and Diamond Mining Effluent Regulations* [MDMER, Part 1, Section 4(1)(b)] under the *Fisheries Act*, which specifies the acceptable pH range of the effluent to be pH 6.0 to 9.5. Therefore, on an individual pollutant basis, Woodfibre LNG's WDA application predicts that the effluent discharged will contain several metals and pH conditions at concentrations with a high probability of causing adverse effects on aquatic wildlife. When combined with the effluent discharged from **FortisBC's WDA application at the Woodfibre Site** to discharge effluents into Stream 'X' which flows into Howe Sound, this presents a cumulative discharge that has a higher probability of increased exceedances of copper, lead, zinc, and vanadium. Furthermore, these combined effluents will also contain other metals, hydrocarbons (i.e., PAHs), and water quality parameters (i.e., pH, temperature, dissolved oxygen) at or below BC Water Quality Guidelines that together may add up to pollutant levels that equate to or exceed guidelines in the foreshore of Howe Sound near the Woodfibre LNG site.

In addition to the two proposed WDAs at the Woodfibre site, **FortisBC's WDA application at the BC Rail Site** will discharge effluent into the Squamish River ~4 km upstream of Howe Sound. This effluent is predicted to contain metals, hydrocarbons (i.e., polycyclic aromatic hydrocarbons, PAHs) and water quality parameters (i.e., pH, temperature, dissolved oxygen) at or below B.C. Water Quality Guidelines. The distance the pollutants in this effluent will travel into Howe Sound is unknown, but since many of these contaminants are persistent and resistant to degradation it is probable that some of these pollutants will be carried into Howe Sound to some extent. This will add to the pollutant load both in the Squamish River and in Howe Sound and increase the risks of adverse health effects on exposed aquatic life in these waters.

3) What are the potential cumulative impacts of these three WDAs for ecosystems and wildlife?

The impacts on aquatic wildlife of excess metals, hydrocarbons, and water quality parameters outside of those deemed safe levels for aquatic life are reduced health and survival of invertebrate (i.e., shellfish) and vertebrate life (i.e., fish and marine mammals) in Howe Sound and the Squamish River. With respect to metals, once released into the environment, metals persist because they do not degrade or break down.²⁷ Some metals, including copper, iron, and zinc are essential elements or micronutrients and are required for metabolic activity in living organisms.²⁸ However, when living organisms are exposed to levels of heavy metals that exceed natural background levels of essential or non-essential metals in water, air, or food they can be toxic.²⁹ In light of the long-term duration (years), high frequency or continuous discharge, as well as the low pH of the effluent that typically increases metal solubility in wastewaters, the metal loads added into the Squamish River and Howe Sound will increase as a result of these combined effluent discharge applications. With the levels of some metals exceeding BC Water Quality guidelines at the Woodfibre LNG export facility as per **Woodfibre LNG's WDA application**, combined with lower levels from FortisBC's two additional effluent discharges, it is likely that some adverse effects on the health and survival of aquatic life will ensue. There are several examples of long-term metal discharge harming aquatic wildlife. Particularly relevant is the documentation of Howe Sound marine life recovery and re-establishment of communities taking years after decades of multiple industrial activities discharging wastes into these waters, including metals from the Britannia Mine.

Although hydrocarbon compounds have different modes of toxic action than metals, they will co-occur in these effluents discharged into the Squamish River and Howe Sound adding another chemical stressor for exposed aquatic life. Hydrocarbon compounds are composed of hydrogen and carbon, are classified as either aromatic (cyclic) or aliphatic (straight-chained), and are the

²⁷ Wu, G., H Kank, X Zhang, H Shao, L Chu, and C Ruan. 2010. [A critical review on the bio-removal of hazardous heavy metals from contaminated soils: Issues, progress, eco-environmental concerns and opportunities](#). Journal of Hazardous Materials 174 (1-3): 1-8.

²⁸ Peralta-Videa, J.R., Lopez, M.L., Narayan, M., Saupe, G. and Gardea-Torresdey, J. (2009) [The Biochemistry of Environmental Heavy Metal Uptake by Plants: Implications for the Food Chain](#). The International Journal of Biochemistry & Cell Biology, 41, 1665-1677.

²⁹ IBID

main components in many types of fuels.³⁰ Their persistence and toxicity varies due to the range of types and sizes of the thousands of hydrocarbons present in petroleum products.³¹ However, as evidenced by various historical oil spills, many are resistant to degradation, persist for years, and exert a range of adverse effects in animals after low-level, long-term exposures. Particularly well-studied are the polycyclic aromatic hydrocarbons (PAHs), of which 16 have been identified as priority pollutants by the United States Environmental Protection Agency (US EPA), and are also present on the List of Toxic Substances under Schedule 1 of the Canadian Environmental Protection Act.³² One of the most well studied PAHs, benzene, is a known human carcinogen, and benzene as well as several other PAHs have been shown to cause developmental abnormalities and impair reproduction in animals.³³ Aquatic organisms can accumulate hydrocarbons via water, sediment, and food exposure and uptake and toxicity varies depending on several factors such as: metabolic capacity of the organism, type of hydrocarbon, and environmental variables (i.e., temperature, dissolved organic matter, etc.). Generally, during low-level continuous hydrocarbon exposures lower trophic levels (plants, algae, shellfish) accumulate the highest levels due to their inability to metabolize hydrocarbons, and this may result in dietary exposures of toxicological significance in higher trophic levels (i.e., fish, marine mammals, and human consumers) despite their ability to metabolize hydrocarbons to certain tolerable concentrations.¹²

Collectively, in the foreshores of the Woodfibre site two of these three effluent discharge applications (i.e., **Woodfibre LNG's WDA application** and **FortisBC's WDA application at the Woodfibre Site**) have a high probability of toxic levels of copper, lead, zinc, and vanadium that can generally be characterized as: medium in magnitude (one to ten times the long-term water quality guideline); local in spatial extent from discharge point (100 m or less) with potential for longer-range transport depending on water conditions and barge traffic; long-term in duration (elevated above water quality guideline >1 year); and continuous/frequent exposure scenarios. In addition, although hydrocarbon concentrations are not predicted to exceed available BC

³⁰ Canadian Council of Ministers of the Environment. 1999. [Canadian water quality guidelines for the protection of aquatic life: Polycyclic aromatic hydrocarbons \(PAHs\)](#). In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.

³¹ IBID

³² US EPA, 2003. United States Environmental Protection Agency. 2003. Framework for Cumulative Risk Assessment. U.S. EPA/ORD/NCEA, Washington, DC. EPA/600/P-02/001F. Available at: http://www.epa.gov/raf/publications/pdfs/frmwrk_cum_risk_assmnt.pdf.

³³ Canadian Council of Ministers of the Environment. 1999. [Canadian water quality guidelines for the protection of aquatic life: Polycyclic aromatic hydrocarbons \(PAHs\)](#). In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.

Water Quality Guidelines, these combined effluents will increase hydrocarbon loads into the foreshores of Howe Sound and possibly to a larger spatial extent. Although these discharges will not result in acutely toxic concentrations of hydrocarbons, low-level continuous exposures may result in bioaccumulation of hydrocarbons particularly at lower trophic levels (plants, algae, shellfish) that may result in dietary exposures of toxicological significance in higher trophic levels (i.e., fish and human consumers).

Although the toxic effects of various chemical mixtures that reflect environmentally relevant exposure scenarios has not been documented for all possible combinations, and risk assessments of mixtures are complicated, contaminants have been identified as one of Earth's greatest threats to human and environmental health.³⁴ This is in large part a result of decades of industrial, agricultural, and urban anthropogenic activities deliberately or accidentally releasing numerous chemical pollutants into waterways.³⁵ Howe Sound is a prime example of an aquatic ecosystem with documented historical pollution and ongoing current point source pollution that has shown considerable recovery in the last two decades. However, adding point sources of non-degradable and persistent toxic pollutants will hamper the recovery of this aquatic ecosystem to some unknown geographic extent. Indeed, the surface flows presented in Willems (2004)³⁶ of the foreshore at the Woodfibre site and other areas of Howe Sound suggest a more complex and unpredictable water mixing scenario that will be influenced by seasons, storm events, LNG carrier traffic, etc., and there is a lack of empirical data delineating the transit distance of these effluent discharges.³⁷ Together, it is clear that toxic effluent plumes will carry pollutants into the foreshore of Howe Sound and into the Squamish River. However, the geographic extent of this contamination and how this will culminate in additive or synergistic effects at various Howe Sound sites previously or currently impacted by pollution is unknown. This uncertainty makes it difficult to fully understand the consequences and geographic extent

³⁴ Landrigan, P.J., Fuller, R., Acosta, N.J.R., Adeyi, O., Arnold, R., Basu, N. (Nil), Baldé, A.B., Bertollini, R., Bose-O'Reilly, S., Boufford, J.I., Breyse, P.N., Chiles, T., Mahidol, C., Coll-Seck, A.M., Cropper, M.L., Fobil, J., Fuster, V., Greenstone, M., Haines, A., Hanrahan, D., Hunter, D., Khare, M., Krupnick, A., Lanphear, B., Lohani, B., Martin, K., Mathiasen, K. v, McTeer, M.A., Murray, C.J.L., Ndahimananjara, J.D., Perera, F., Potočnik, J., Preker, A.S., Ramesh, J., Rockström, J., Salinas, C., Samson, L.D., Sandilya, K., Sly, P.D., Smith, K.R., Steiner, A., Stewart, R.B., Suk, W.A., van Schayck, O.C.P., Yadama, G.N., Yumkella, K., Zhong, M., 2018. [The Lancet Commission on pollution and health](#). *The Lancet* 391, 462–512.

³⁵ Rehman, M.S.U., Rashid, N., Ashfaq, M., Saif, A., Ahmad, N., Han, J.-I., 2015. [Global risk of pharmaceutical contamination from highly populated developing countries](#). *Chemosphere* 138, 1045–1055.

³⁶ Willems, W. 2004. A GIS-approach to assess the impact of two pulp mills (Woodfibre and Port Mellon) on intertidal biodiversity in the Howe Sound region (British Columbia, Canada). Master of Science Thesis. Advanced Studies in Marine and Lacustrine Sciences, Dalhousie University.

³⁷ IBID

of multiple new effluent discharges, but undoubtedly increases the risks of adverse health effects due to pollutant exposure to both aquatic wildlife and humans utilizing Howe Sound near these discharge sites.

4) What are the cumulative impacts of these three new effluent discharge applications in addition to existing pollution inputs?

The target parameters of concern from **FortisBC's WDA application at the BC Rail Site** discharging into the Squamish River (~4 km upstream of Howe Sound) include several metals (arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, molybdenum, selenium, tin, zinc) and PAHs (acenaphthene, acridine, anthracene, benzo(a)anthracene, benzo(a)pyrene, chrysene, ethylbenzene, fluoranthene, fluorene, naphthalene, phenols, phenanthrene, pyrene). It is proposed that water will be treated to meet BC Approved Water Quality Guidelines (WQG) for Aquatic Life prior to release into the Squamish River.

The Squamish wastewater treatment plant (WWTP) discharges primary and secondary sewage effluent into the Squamish River (up to 17,850 m³/day) ~150 m upstream of the discharge location for **FortisBC's WDA application at the BC Rail Site**.³⁸ As established in most urbanized areas, hundreds of chemicals released from municipal wastewater treatment plants (WWTPs) which include contaminants such as metals, salts, nutrients, PAHs, polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans, surfactants (i.e., alkylphenol ethoxylates), pesticides, polybrominated diphenyl ethers (PBDEs), polychlorinated biphenyls (PCBs), human hormones, pharmaceuticals and personal care products (PPCPs; i.e., prescription, over the counter, and veterinary therapeutic drugs for human and animal ailments/diseases, and PCPs such as soaps, deodorants, and cosmetics).³⁹ Based on recent water quality monitoring downstream of the Squamish WWTP for human coliforms, metals, and polycyclic aromatic hydrocarbons, the main contaminants exceeding water quality guidelines appear to be ammonia, nitrite, coliforms (*Escherichia coli*), coliforms (thermotolerant), *Enterococcus*, aluminum, and iron.⁴⁰ In addition, urban run-off from the District of Squamish storm sewers provides a similarly complex contaminant milieu such as tire degradation products, metals, pesticides, gas and oil products. Therefore, the cumulative inputs of effluent discharge at concentrations that equate to or are less than BC Water Quality Guidelines for **FortisBC's WDA**

³⁸ Opus. 2016. District of Squamish, [Sanitary Sewer Master Plan](#).

³⁹ Khan, U., Bloom, R.A., Nicell, J.A., Laurenson, J.P., 2017. [Risks associated with the environmental release of pharmaceuticals on the U.S. Food and Drug Administration "flush list."](#) Science of The Total Environment 609, 1023–1040.

⁴⁰ Great Pacific Engineering & Environment, 2023.

application at the BC Rail Site have the potential to increase the magnitude and frequency of harmful levels of aluminum and iron, and also increase the concentrations of hydrocarbons in the Squamish River that may equate to or exceed guidelines protective of freshwater aquatic life. In addition, due to the continuous release of effluent from the Squamish WWTP that contains not only metals and hydrocarbons but a mixture of pollutants that have been shown to cause adverse effects in fish and invertebrates since the 1990's,^{41,42,43} these additional pollution inputs into the Squamish River by FortisBC would increase the risks of severe and irreversible pollution impacts to aquatic wildlife.

Cumulative impacts of discharge into Stream 'X' and into Howe Sound receiving waters are expected based on the additional three effluent inputs and due to the existing run-off from the Woodfibre site and associated water quality in Stream 'X'. Although not specified in **Appendix C of FortisBC's WDA application at the Woodfibre Site**,⁴⁴ planned works within the WLNG site will also result in additional discharges into Stream 'X' and downstream Howe Sound receiving waters. These additional works are referred to as stormwater discharges upstream of the discharge site for **FortisBC's WDA application at the Woodfibre Site**, including the following: runoff from the V2 Compressor Station during construction and operations (to Reach D); runoff from the planned WLNG landfill closure (to Reach B); and, runoff from the Custody Transfer Station during construction and operations (to Reach B). The quantity and identity of these additional contaminants inputs into stream 'X' have not been considered in a cumulative risk assessment for the Woodfibre site, and may result in higher exposures to metals, hydrocarbons, and impaired water quality conditions (i.e., low pH) that may contribute to adverse effects in wildlife within or utilizing Stream 'X' or downstream in Howe Sound. Finally, baseline data collected for Stream 'X' presented in **Appendix C of FortisBC's WDA application at the Woodfibre Site** show that several parameters meet or exceed BC Water Quality Guidelines for the protection of freshwater aquatic life, such as: total dissolved solids, copper, iron, and zinc. When additional discharges by FortisBC are added to Stream 'X' with these existing high levels of contaminants the frequency of guideline exceedances will likely increase, thus increasing the risk of adverse effects on wildlife based on the known individual toxicity of these parameters.

⁴¹ Ings, JS, MR Servos, and MM Vijayan. 2011. Exposure to municipal wastewater effluent impacts stress performance in rainbow trout. *Aquatic Toxicology* 103:85-91.

⁴² Matthiessen, P, JR Wheeler, and L Weltje. 2018. A review of the evidence for endocrine disrupting effects of current-use chemicals on wildlife populations. *Crit Rev Toxicol* 48(3):195-216.

⁴³ Purdom, CE, PA Hardiman, VVJ Bye, NC Eno, CR Tyler and JP Sumpter. 1994. Estrogenic Effects of Effluents from Sewage Treatment Works. *Chemistry and Ecology* 8(4).

⁴⁴ Jacobs (2022) Appendix C of FortisBC's WDA application at the Woodfibre Site. Memorandum: Waste Discharge Authorization Sampling and Analysis for the WLNG Site. 24 pp.

The toxic effects of multiple metals and total dissolved solids are likely to result in increased toxicity relative to their individual counterpart exposure scenarios, and these cumulative risks are not currently incorporated or assessed in any of the three WDA applications proposed. **FortisBC's WDA application at the Woodfibre Site** reports that Stream 'X' is non-fish bearing; however, no discussion of other aquatic wildlife inhabiting or utilizing this stream and the potential adverse effects due to effluent discharge for **FortisBC's WDA application at the Woodfibre Site** and other related discharges from **Woodfibre LNG's WDA application** were described. For example, aquatic invertebrates, amphibians, or terrestrial mammals may utilize this stream and therefore may be impacted, in addition to the numerous aquatic species present downstream in Howe Sound. Additional plant and animal surveys to characterize the aquatic wildlife inhabiting Stream 'X' that may be impacted by the effluent discharge associated with the **FortisBC's WDA application at the Woodfibre Site** are recommended.

5) FortisBC states in its two applications that it will be equivalent to or under Canadian Water Quality guidelines, but will the cumulative discharge from all three applications exceed these guidelines?

Woodfibre LNG's WDA application for the LNG Export Facility predicts that four heavy metals (copper, lead, zinc, and vanadium) and total suspended solids will be discharged into Howe Sound at concentrations *exceeding* the lowest applicable water quality guideline under the highest effluent discharge scenario predicted by Woodfibre LNG. When combined with the effluent discharged from **FortisBC's WDA application at the Woodfibre Site** into Stream 'X' which flows into Howe Sound, this presents a cumulative discharge that has a higher probability of increased exceedances of copper, lead, zinc, and vanadium. Furthermore, these combined effluents will also contain other metals, hydrocarbons (i.e., PAHs), and water quality parameters (i.e., pH, temperature, dissolved oxygen) at or below BC Water Quality Guidelines that together may add up to pollutant levels that equate to or exceed guidelines in the foreshore of Howe Sound near the Woodfibre LNG site.

The cumulative inputs of effluent discharge at concentrations that equate to or are less than BC Water Quality Guidelines from construction activities for **FortisBC's WDA application at the BC Rail Site** and the upstream WWTP also have the potential to increase the magnitude and frequency of harmful levels of aluminum and iron exceedances in the Squamish River and possibly downstream in Howe Sound. In addition, both of these point sources of pollution together will increase the concentrations of hydrocarbons in the Squamish River and Howe Sound that may equate to or exceed guidelines protective of freshwater aquatic life.

6) It is our understanding that there is a high likelihood of encountering acid rock drainage materials during construction of the tunnel. What are ongoing potential impacts of acid rock drainage?

Acid rock drainage refers to rock that contains significant concentrations of sulfide minerals that can react with water, air, and bacteria to generate acidic and metal-laden effluent. This phenomenon was discovered during metal mining operations when waste rock (or uneconomic grade rock) with high concentrations of sulfide minerals occurring alongside the target ore is broken up and stacked in large piles adjacent to above-ground or underground mine operations with no underlying liner, resulting in the release of acidic effluent containing high metal concentrations.^{45,46} Indeed, these waste rock accumulations are often the largest sources of contaminants at mine sites.⁴⁷ This results in acidic conditions in waters receiving acid mine drainage with toxic concentrations of metals, typically causing acute toxicity and reduced biodiversity. Ultimately, when acid mine drainage mixes with groundwater, surface water or soil, there is a high risk of harmful effects on exposed humans, animals and plants.

The main description of the plan for monitoring and mitigating acid rock drainage in the **FortisBC's WDA application at the Woodfibre Site (page 11-12)** is provided below:

“Monitoring and management plans will be updated and developed, including the Construction Environmental Management Plan (CEMP) and a detailed Acid Rock Drainage/Metal Leachate (ARD/ML) Construction Response Plan in accordance with the Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials (Price 2009). In addition to the CEMP and ARD/ML Construction Response Plan, the EPP prepared by the DB Contractor will detail their approach to identification, excavation, storage and monitoring ARD/ML during tunnel construction. These plans will ensure that commitment and mitigation measures will be implemented during construction of the EGP Tunnel to avoid or reduce the potential adverse effects on the environment specific to ARD/ML”

⁴⁵ U.S. Environmental Protection Agency, 1997. Damage cases and environmental releases from 1078 mines and mineral processing sites. EPA Publication A530-R-99-023, 1997. 1079

⁴⁶ U.S. Environmental Protection Agency, 2004. Nationwide Identification of Hardrock Mining 1080 Sites. EPA Report 2004-P-00005, 2004. 1081

⁴⁷ Singer, P.C. and W. Stumm, 1970. Acidic mine drainage: the rate-determining step. Science. 167, 1121–1123.

“At locations where ARD/ML rock is suspected to occur, samples will be taken as required and sent for testing to an approved laboratory to accurately determine the ARD/ML classification.

Rock handling, storage, re-use and disposal will be undertaken following the best practices outlined in Price (2009), the CEMP, and the ARD/ML Construction Response Plan. Previous testing has shown that the PAG rock starts to generate acidic water after a period of between 20 to 70 weeks”

Based on the description above in **FortisBC’s WDA application at the Woodfibre Site**, no specific plans have been provided for the monitoring and mitigation of acid rock drainage at the Woodfibre Site, therefore the potential for mitigating any acid rock drainage into surrounding waters is not clear. A thorough and clear plan for monitoring and mitigating acid rock drainage at the Woodfibre Site is necessary in order to fully assess **FortisBC’s WDA application at the Woodfibre Site**.

7) What contaminants will be discharged and at what concentrations? Where will they be discharged? Have all of the potential contaminants been evaluated?

FortisBC’s WDA application at the BC Rail Site

According to **FortisBC’s WDA application at the BC Rail Site**, *“water is expected to be produced from the following sources during the construction of the East Shaft and the Soft Ground Tunnel:*

- *industrial water generated during construction of the East Shaft (approximately 7 m wide and 5 m deep);*
- *groundwater inflow into the shaft during tunnel construction and pipeline installation;*
- *TBM [Tunnel Boring Machine] industrial water including waste bentonite slurry mixture and water for cleaning of equipment;*
- *precipitation on-site, including runoff collected from stockpiles, and wet weather surface flows that are affected by construction activities; and*
- *water used for hydrostatic testing of the pipelines.”*

The application states that the groundwater monitoring program revealed the presence of select total metals (beryllium, cobalt, chromium, iron, and zinc) and various PAHs at concentrations greater than the current BC WQG. Total metal concentrations that exceeded BC

WQGs were detected at all eleven monitoring wells during one or more sampling events in 2020 and 2021. PAH concentrations exceeding the guidelines were only reported at one groundwater well (MW06-34). In addition, the contaminants present in the light non-aqueous phase liquid (LNAPL) noted in MW06-34 groundwater sample appear to be a hydrocarbon mixture that consists of weathered creosote and water-washed diesel. Historically, LNAPL contamination was identified at the Site in area AEC 27, which is hydraulically up-gradient from the well MW06-34.

There is documentation from 1972 newspaper articles (Citizen), letters to Environment Canada from the Squamish Ecological Organization describing the BC Rail Site as a dumping ground for oil and shop waste (rusted lathe turnings). This resulted in the creation of pools with these pollutants mixed with water that birds would land in and become mired in oil and suffocate, starve or die of exposure. The location was described as ‘Squamish North Yards, on a little siding, about half-way between the buildings complex and the Dentville crossing’ (letter addressed to Dr. G.L. March, Environment Canada by Doug Morrison, Secretary, Squamish Ecological Organization, October 28, 1972). Subsequent letters indicate the pools were filled and covered Nov. 11, 1972. See **Appendix A** attached.

The effluents from **FortisBC’s WDA application at the BC Rail Site** construction activities will be discharged into the Squamish River ~4 km upstream of Howe Sound.

FortisBC’s WDA application at the Woodfibre Site

According to **FortisBC’s WDA application at the Woodfibre Site**, wastewater will be generated during the construction activities of the EGP Tunnel for the western portion of the tunnel, to be installed within rugged mountainous terrain, and includes the following:

- water from precipitation;
- groundwater inflow into the tunnel; and
- Tunnel Boring Machine (TBM) industrial water, including water for drilling, probing, grouting and cleaning of equipment.

FortisBC states that all water originating from the construction at the WLNG Site will enter a water treatment plant prior to discharge into the receiving environment, and that no contaminants generated during this process will be discharged above BC Approved Water Quality Guidelines (BC ENV 2021) and BC Oil and Gas Commission (OGC) criteria.

The contaminants of potential concern measured are as follows:

- Extractable Hydrocarbons (EHw)
- Light and Heavy Extractable Petroleum Hydrocarbons in water (LEPHw/HEPHw)

- Polycyclic Aromatic Hydrocarbons (PAH):
- Dissolved metals
- Total metals
- Benzene, ethylbenzene, toluene, xylenes, and styrene (BETXS), Volatile Hydrocarbons (VH), Volatile Petroleum Hydrocarbons (VPH) and Methyl tertbutyl ether (MTBE)
- Volatile Organic Compounds
- Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Dissolved Chloride, Dissolved Fluoride, Dissolved Sulphate, Nitrate and Nitrite, Total Organic Carbon (TOC) and Biochemical Oxygen Demand (BOD)
- Fatty and Resin Acids
- Total Phenolics

The discharge location is Stream 'X' which is a small creek adjacent to the Woodfibre Tunnel Portal also referred to as "East drainage," "East Creek," or "Stream 2" in other documents. Stream 'X' is located immediately adjacent to the EGP Tunnel Portal at the Woodfibre site, and effluent discharged into the stream will infiltrate into the ground and/or flow downhill into Howe Sound, which is ~150 m south.

Have all of the potential contaminants been evaluated?

Most of the key potential contaminants have been evaluated in the WDA applications. However, during the treatment of effluent at the BC Rail and Woodfibre Sites, two chemicals, chitosan and Haloklear BHR-P50 will be added during water treatment during flocculation. These will not be measured in the effluent nor in receiving waters based on the two temporary permit authorizations nor in the WDAs for these two projects. Currently there are no BC or Canadian Water Quality Guidelines for chitosan or Haloklear BHR-P50.

Chitin and its deacetylated derivative, chitosan, are a family of linear polysaccharides composed of varying amounts of (b1 to 4) linked residues of N-acetyl-2 amino-2-deoxy-D-glucose (glucosamine, GlcN) and 2-amino-2-deoxy-D-glucose (N-acetyl-glucosamine, GlcNAc) residues. Chitosan is soluble in aqueous acidic media via primary amine protonation, however, for chitin, the number of acetylated residues is high enough to prevent the polymer from dissolving in aqueous acidic media. Chitin is a very abundant biopolymer present in the exoskeleton of crustacea, insect's cuticles, algae and in the cell wall of fungi. In contrast, chitosan is less frequent in nature occurring in some fungi (Mucoraceae). In general, it appears to have low acute toxicity, but chronic toxicity data of chitosan on aquatic organisms is lacking.⁴⁸

⁴⁸ Aranaz I, Alcántara AR, Civera MC, Arias C, Elorza B, Heras Caballero A, Acosta N. 2021 Chitosan: An Overview of Its Properties and Applications. *Polymers (Basel)*. 2021 Sep 24;13(19):3256. doi: 10.3390/polym13193256. PMID: 34641071; PMCID: PMC8512059.

A paucity of toxicological studies appears for Haloklear BHR-P50. However, based on a Safety Data Sheet by Sound Environmental Concepts,⁴⁹ this product is a chemical mixture with the main chemical listed as aluminum chloride hydroxide sulfate. It is classified as hazardous, may be corrosive to metals with a pH of 3.0 to 3.5, is soluble in water, causes serious eye damage in humans, with apparent low acute toxicity in rainbow trout based on a lethal concentration killing 50% of the test animals at 3222 mg/L. In addition, based on the Safety Data Sheet by Sound Environmental Concepts, its persistence and degradability are unknown and it is recommended to avoid release to the environment.⁵⁰

Concentrations of both Chitosan and Haloklear BHR-P 50 in wastewaters discharged are not provided in either of FortisBC's WDA applications. The concentrations of these chemicals in the receiving environment downstream of both the BC Rail and Woodfibre sites are currently not included nor predicted in either WDA application. This combined with the little toxicity data, particularly, chronic toxicity thresholds for freshwater and marine aquatic life for these chemicals, and the potential chronic exposure scenarios consisting of years of discharge present unacceptable uncertainty regarding the impacts of these chemicals on aquatic wildlife. It is recommended that these chemicals are measured in wastewater effluents and in receiving waters weekly to monitor concentrations discharged into the environment. In addition, acute and chronic toxicity testing with invertebrate and fish species for these wastewaters discharged at a range of dilutions should be part of routine parameters measured under these WDAs.

8. What physical disruptions will occur? Boring of the tunnel in the estuary may be very disruptive; what biota will be displaced during that process? What will the impacts be on biota or aquatic wildlife?

FortisBC states that:

“DB Contractor’s design for the EGP Tunnel shows an alignment starting from a declined portal located on the BC Rail Site west of Industrial Way in Squamish (East Shaft) and terminating in a portal structure at the WLNG Site (Woodfibre Portal), northeast of the future WLNG production facility. The Soft Ground Tunnel is approximately 3.8 km in length and will be constructed from the BC Rail Site by a slurry tunnel boring machine (TBM). The DB Contractor will use support of excavation (SOE) to create a decline or ramp structure which will provide access for tunneling operations and pipeline

⁴⁹ Sound Environmental Concepts 2019 Safety Data Sheet for Haloklear BHR-P50. 10 pp.

⁵⁰ Ibid.

installation. The East Shaft will be as shallow and narrow as practicable to reduce groundwater inflows, while maintaining enough overburden and space for tunneling operations. The East Shaft and BC Rail Site will accommodate all construction activities for the Soft Ground Tunnel, including removal of excavated tunnel spoils and the treatment and discharge of all construction affected water.”

Based on the description of the tunnel provided, it is unclear if the upper sediments will be disturbed at the water sediment-interface in the Squamish estuary. This information is needed in order to determine if the tunnel boring could impact/destabilize the habitat of benthic/sediment dwelling species and species that rely on benthic invertebrates as prey. In addition, no description of the level of underwater noise pollution was offered, and this is of significance to both fish and marine mammals, in particular.

Resuspension of seabed sediments and water column mixing due to disturbance by LNG Carriers and associated tugboats have also not been considered in any of the two WDA applications at this time for the Woodfibre Site. The LNG carriers will be berthing alongside the floating storage units, which are located approximately 18 metres above the surface of the seabed. Although this requires further investigation, aerial videos of LNG carriers docking demonstrate water column disturbance and resuspension of sediments. Therefore, it is probable that large LNG carriers docking at the Woodfibre LNG site will result in mixing of deeper waters with the foreshore waters of Howe Sound near the Woodfibre LNG site, as well as increased turbidity, total suspended solids, dissolved solids, and the reintroduction of sediment-bound pollutants into the water column. Movement of pollutants has not been considered in any WDA surrounding the Woodfibre LNG site, but such consideration is prudent in light of the high levels of dioxins and furans from two pulp mills, which have made crabs and bivalves in most of Át'l'ka7tsem / Howe Sound unsafe for human consumption since the 1980's and have led to restrictions for harvesting them. In recent years, some of these restrictions have been lifted as the levels of dioxins and furans present in crabs and sediments have declined, but restrictions are still in place near the Woodfibre site. It is likely that the disturbance of metals and persistent organic pollutants due to construction and barge traffic, as well as LNG carriers and tugboats associated with the Woodfibre LNG and FortisBC projects will further extend restrictions for fish and shellfish harvesting within the effluent plume of Woodfibre LNG's and FortisBC's proposed wastewater discharge.

Furthermore, **Woodfibre LNG's WDA application** for the Export Facility states that:

“Howe Sound has a stratified water column with the shallow freshwater influenced surface layer up to 10 m depth with limited mixing of the surface layer with deeper water layers.”

It is further stated in **Woodfibre LNG's WDA application** that due to the water column stratification, the discharges from the sediment ponds will not mix with deeper water layers and will not mix with the treated domestic wastewater and treated leachate effluent already being discharged into deeper layers. With barge traffic and LNG carriers / tugboats disturbing the water column, this no mixing zone between deeper and shallower waters and pollutants discharged into these different water column depths requires further consideration and investigation.

9. What are the physical freshwater additions into the Squamish River / Howe Sound?

The following description of freshwater additions to the Squamish River were summarized by Great Pacific Engineering and Environment (2023).⁵¹ The Squamish River receives freshwater inputs from the Cheakamus and Mamquam Rivers. All of these river flows are mixed with summer flows dominated by snowmelt and glacial runoff. For all three rivers the mean flow rates peak in the early summer (June and July) with minimum (mean) flow rates in the winter and early spring (January to April). Large fluctuations in flow due to rainfall also occur in all three rivers. Maximum and minimum flow rates for the Cheakamus in the fall is $\sim 700 \text{ m}^3/\text{s}$ and $\sim 10 \text{ m}^3/\text{s}$, respectively, while the maximum for the Mamquam River is $\sim 250 \text{ m}^3/\text{s}$ and minimum is $\sim 10 \text{ m}^3/\text{s}$.

The following freshwater inputs into Howe Sound were summarized in Willems (2004).⁵² The Squamish River is the main freshwater input in Howe Sound and is fed by glacial run-off. The Squamish River discharge rate reaches a maximum of $750 \text{ m}^3/\text{s}$ during freshet (May-September) and a minimum discharge rate of $75 \text{ m}^3/\text{s}$ from December-April. Consequently, the currents, salinity and temperature in upper Howe Sound exhibit seasonal variation, linked with the input of melt water from the river.

These freshwater inputs into the Squamish River and Howe Sound are important to consider in terms of cumulative impacts of multiple contaminant inputs on the interconnected water bodies comprising the Howe Sound watershed. A significant source of pollution is the

⁵¹ Great Pacific Engineering & Environment. 2023. Environmental Impact Study District of Squamish – Squamish River Outfall

⁵² Willems, W. 2004. A GIS-approach to assess the impact of two pulp mills (Woodfibre and Port Mellon) on intertidal biodiversity in the Howe Sound region (British Columbia, Canada). Master of Science Thesis. Advanced Studies in Marine and Lacustrine Sciences, Dalhousie University.

numerous synthetic chemicals as well as other biologically active human excretory products (e.g., hormones) continuously discharged in WWTP effluent into the Squamish River that may also be carried into Howe Sound waters. Although no studies are available describing this potential source of contamination in Howe Sound, it is possible that numerous chemicals from WWTP enter Howe Sound and are present in the water column and sediments. Therefore, understanding and accounting for the freshwater inputs into these waters and associated contaminant inputs and spatial distribution is necessary to assess the cumulative impacts of historical, current and proposed contaminant inputs on wildlife in the Howe Sound watershed.

10. What is the timing of testing and monitoring and is this sufficient to ensure FortisBC has the ability to mitigate / avoid discharge of wastewaters exceeding guidelines?

FortisBC's WDA application at the BC Rail Site states that proposed effluent will contain metals, hydrocarbons (i.e., polycyclic aromatic hydrocarbons, PAHs), and water quality parameters (i.e., pH, temperature, dissolved oxygen) at or below B.C. Water Quality Guidelines. The proposed WDA application entails monitoring at weekly or monthly intervals to verify B.C. Water Quality Guidelines are met for these contaminants and water quality parameters. Therefore, some uncertainty in the levels of contaminants/quality of water discharged and the potential for exceedances of guidelines in discharged water may occur from one week up to one month in duration between monitoring prior to mitigation measures.

FortisBC's WDA application at the Woodfibre Site entails monitoring at weekly or monthly intervals to verify BC Water Quality Guidelines are met for these contaminants and water quality parameters. Therefore, some uncertainty in the levels of contaminants/quality of water discharged and the potential for exceedances of guidelines in discharged effluent may occur from one week up to one month in duration between monitoring prior to mitigation measures.

For **FortisBC's WDA application at the BC Rail Site**, the BC Energy Regulator has made a decision to issue a Section 15 Approval, effective Sept. 29, 2023, for a period of 15 months to allow effluent discharge. Similarly, for **FortisBC's WDA application at the Woodfibre Site**, the BC Energy Regulator has made a decision to issue a Section 15 Approval, effective Dec. 8, 2023, until March 31, 2024 to allow for continuous effluent discharge. In both cases, most of the pollutants (metals, hydrocarbons, various water quality parameters) in the effluent are required to be measured weekly, which is sufficient. However, hydrocarbons are not required to be measured in receiving waters downstream nor upstream of discharge sites. This is a limitation of these temporary authorization permits in light of the contamination of the Woodfibre Site and

BC Rail Site by hydrocarbons, as well as WWTP hydrocarbon inputs into the Squamish River upstream of the BC Rail Site.

Both of these temporary authorizations include the following statements:

“2.1.7 The effluent discharged from the wastewater treatment system shall not exceed the applicable British Columbia Approved and Working Water Quality Guidelines for Freshwater & Marine Aquatic Life, as published by the Ministry of Environment & Climate Change Strategy. In addition, the effluent shall be free of other contaminants in concentrations that may have an adverse effect on the receiving environment.”

“2.1.8. The effluent shall not be discharged in a manner or quantity that impairs the proper ecological function or otherwise causes excessive erosion of the receiving environment into which the discharge of water is conveyed.”

Two concerns are noted with 2.1.7 and 2.1.8: concentrations of flocculants (chitosan and Haloklear BHR-P 50) are not measured in this effluent or receiving waters and considerable uncertainty exists surrounding the toxicity of these contaminants under low level, chronic exposure scenarios for aquatic wildlife; and, no environmental monitoring studies of aquatic life are required to verify that the ecological functioning of the Squamish River or Howe Sound receiving environment is or is not impaired, so this cannot be ascertained under this temporary authorization permit.

Although acute rainbow trout toxicity tests are required every two weeks in both temporary authorization permits and this will provide some information on short-term concentrations that are lethal, additional laboratory chronic toxicity tests measuring sub-lethal adverse effects known to affect wildlife health are necessary to more comprehensively assess the longer term impacts of these complex, multi-chemical effluents. In addition, to further verify the ecological functioning of these receiving waters has not been impacted, environmental monitoring of wildlife health (i.e. fish and benthic invertebrates) at and downstream of the discharge sites in these water bodies are recommended. Both these longer term laboratory toxicity tests and monitoring of wildlife health are prescribed under the *Fisheries Act* for metal and diamond mine effluents and pulp mill effluents in Canada (i.e. Environment and Climate Change Canada Environmental Effects Monitoring),⁵³ and these additional studies are recommended.

⁵³ Government of Canada 2023 Environmental Effects Monitoring. Website accessed 2023-12-30. <https://www.canada.ca/en/environment-climate-change/services/managing-pollution/environmental-effects-monitoring.html>

11. RE: FortisBC’s WDA application at the BC Rail Site - Appendix B - Soil and Groundwater investigation at BC Rail Property by Jacobs, Section 1 - Project Background, what are the impacts of having the groundwater plume move that is found in the area south of AEC 13? Is there anything they can do to mitigate these impacts?

According to **Appendix B of FortisBC’s WDA application at the BC Rail Site**, in May of 2016, the BC Ministry of Environment and Climate Change Strategy issued a Risk-Based Certificate of Compliance for the BC Rail Site. The Risk-Based Certificate of Compliance allows for contamination in soil and groundwater at levels above the BC Contaminated Sites Regulation (BC CSR) numerical standards to remain on the site. Performance verification requirements must be maintained for the Certificate of Compliance to be valid. The specific performance verification requirement for Area of Concern (AEC) 13 involves maintaining the groundwater plume in this location to its current extent, meaning *“Downward solute transport from the shallow to the deeper aquifers is at steady-state.”*

As described in Appendix B, this project will dewater and dispose of groundwater. Consequently, there is the potential to draw down the groundwater from the area south of AEC 13 groundwater plume, which may induce the plume to move. If the plume were to move, the contaminants of concern present in AEC 13 would also move. Specifically, the groundwater contaminants above BC CSR and BC Water Quality Guidelines would include: light extractable petroleum hydrocarbons in water (LEPHw), naphthalene, phenanthrene, ethylbenzene, vinyl chloride, trichloroethylene, cadmium, cobalt, copper, magnesium, and zinc. If this groundwater were used for tunnel construction purposes at the BC Rail Site, this may result in inappropriate water treatment and inability to achieve contaminant levels below BC Water Quality Guidelines in effluents discharged. Enhanced effluent contaminant monitoring and wastewater treatment may be necessary to ensure effluent quality is achieved. In addition, ongoing monitoring of the movement of this contaminated plume in groundwater and soil are necessary to ensure it remains on the BC Rail Site.

12. RE: Hydrostatic Testing of the 9 KM tunnel - the application mentions the tunnel will be cleaned prior to using freshwater to complete hydrostatic testing and that this water will likely not require treatment. Is this true?

There is no mention of where the 2,630,000 liters of water is coming from other than fresh water stream, and there is mention of using a groundwater source for hydrostatic testing. If groundwater from the BC Rail Site is used there is a concern that some metal and hydrocarbon concentrations will be present at concentrations exceeding the BC Water Quality Guidelines. A clear description of the water source and evidence that it is not contaminated and will not require treatment is needed to understand the implications of the hydrostatic testing phase of this project on the environment.

13. Jacobs stated that the “Investigation of the full extent of LNAPL and groundwater contamination on the BC Rail Site has not been completed, the interpretation of these results is limited” AND “What is not known at this time is the full lateral extent of LNAPL and groundwater contamination.” What are the risks of not knowing the full extent of groundwater contamination prior to starting the water treatment process? What can be done to mitigate these risks?

The contaminants present in the light non-aqueous phase liquid (LNAPL) noted in MW06-34 groundwater sample appear to be a hydrocarbon mixture that consists of weathered creosote and water-washed diesel. Historically, LNAPL contamination was identified at the BC Rail Site in area of environmental concern referred to as AEC 27, which is hydraulically up-gradient from the well MW06-34. The risks of not fully identifying the concentrations of contaminants present and the spatial extent of the LNAPL and groundwater contamination at the BC Rail Site are inappropriate water treatment and inability to achieve contaminant levels less than BC Water Quality Guidelines in effluents discharged. Additional more comprehensive sampling at the BC Rail site to better understand the contaminants present are needed.

14. Are the wastewater treatments proposed at the BC Rail Site sufficient (sedimentation/storage ponds, flocculation addition, and oil water separation)? Should any of the provisions recommended by Aqua Solve be included such as activated carbon filtration, ion exchange, heavy metal reduction and precipitation, and final pH adjustments?

As per FortisBC's WDA application at the BC Rail Site, water will be treated to meet BC Approved Water Quality Guidelines for Aquatic Life prior to release into the Squamish River.

"Water treatment at the BC Rail Site is expected to consist of sedimentation/storage ponds, flocculant and carbon dioxide addition, sand filtration, and/or oil water separation at a minimum. If required, additional treatment in the modular form of activated carbon media can be added to the existing system to treat hydrocarbons and metals."

Yes, these latter water treatments recommended by Aqua Solve are likely to be needed due to high background contaminants of hydrocarbons and metals at the BC Rail Site.

15. Jacobs based their assessment of the discharge activities in regards to the fish and fish habitat of the Squamish River on a discharge rate that would reach a maximum of 150 m³/day. However, FortisBC is applying for a discharge rate of 515 m³/day which they will likely be using. Are the assessments made by the Qualified Professional still valid if they are less than what will be discharged?

Appendix D provided by Jacobs Consultancy Canada Inc. (Jacobs) in FortisBC's WDA application at the BC Rail Site states that the wastewater discharge continuous rate will be 0.00175 m³/s, with a maximum of 150 m³/day. It is further stated in Appendix D that the wastewater will enter directly into the Squamish River, where the background average discharge rate is approximately 300 m³/s. Jacobs in Appendix D also concludes that the discharge rates may vary depending on the groundwater conditions during hydrostatic testing, but discharge will be released over a daily period of 10 hours, with a maximum discharge rate of 0.07 m³/s. Appendix D by Jacobs also notes that this is predicted to result in a maximum generated discharge from construction activity (0.07 m³/s of additional discharge) of 0.0007 % of the minimum background Squamish River discharge of 100 m³/s. This percentage was miscalculated and should be 0.07%, which is two orders of magnitude higher. Jacobs concluded negligible impacts on Squamish River aquatic

life due to increased wastewater inflows of 0.0007%, and provided supporting evidence for various fish species that this level of water flow increase would not harm fish.

However, FortisBC has actually applied for a wastewater discharge rate of 515 m³/day, 24 hours per day, 7 days per week. In Appendix D provided by Jacobs (as noted above) the effects of the wastewater discharges were based on a maximum of 150 m³/day and 10 hours per day. Therefore, this discharge rate of 515 m³/day is approximately 3.4 times higher than that discussed by Jacobs in Appendix D, and 60% longer in duration on a daily basis.

These underestimations of wastewater discharge rates and impacts on water flows in the Squamish River may result in adverse effects in early life stage fish species based on the water velocities required for the successful rearing of several fish species, as discussed in Appendix D by Jacobs. Jacobs noted that several fish species require specific ranges of water velocities for successful rearing of early life stages (i.e., embryonic stages encapsulated in eggs, larval stages, etc.). For example, juvenile Chinook salmon require velocities ranging between 0.3 and 0.9 m/s and the Squamish River has been rated as important for spawning of this species. Jacobs also stated that bull trout can be found in the Squamish River near the Project and prefer a water velocity of 0.14 to 0.52 m/s, and that water velocity must remain under 0.72 m/s to ensure viable egg development. Therefore, if the Squamish River velocity was at the upper limit for some of these species, it is possible that the project may impact successful rearing of these sensitive species. A revised assessment reflecting the actual proposed discharge rate of 515 m³/day is needed to accurately discern if the changes in water flows in the Squamish River due to the wastewater discharges from this project will have adverse effects on the survival of fish, other aquatic wildlife (i.e., benthic invertebrates, etc.), and abiotic factors important for river ecosystems (i.e., nutrient concentrations, total suspended particulate matter, etc.).

Conclusions

The cumulative impacts of these three effluent discharge applications—namely, **Woodfibre LNG’s WDA application**, **FortisBC’s WDA application at the BC Rail Site**, and **FortisBC’s WDA application at the Woodfibre Site**—will be increased concentrations and increased risks of adverse effects of several persistent and toxic pollutants on aquatic life in Howe Sound and the Squamish River.

The cumulative inputs of effluent discharge at concentrations that equate to or are less than BC Water Quality Guidelines from the FortisBC BC Rail Site construction activities have the potential to increase the magnitude and frequency of harmful levels of aluminum and iron, and also increase the concentrations of hydrocarbons in the Squamish River that may equate to or exceed guidelines protective of freshwater aquatic life.

In addition, the District of Squamish discharges treated effluent from the Squamish Wastewater Treatment Plant (WWTP) to the Squamish River. The outfall is observable from the riverbank during low river flow conditions, and is located approximately 1.5 km upstream of the BC Rail Site. Several contaminants have been measured in sewage effluents, such as: metals, salts, nutrients, polycyclic aromatic hydrocarbons (PAHs), polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans, surfactants (i.e., alkylphenol ethoxylates), pesticides, polybrominated diphenyl ethers (PBDEs), polychlorinated biphenyls (PCBs), human hormones, pharmaceuticals and personal care products (PPCPs; i.e., prescription, over the counter, and veterinary therapeutic drugs for human and animal ailments/diseases, and PCPs such as soaps, deodorants, and cosmetics). The cumulative impacts of the FortisBC BC Rail Site construction activities and the WWTP on the Squamish River have not been considered.

A cumulative risk assessment is particularly appropriate for the two proposed WDAs at the Woodfibre site due to both effluent discharge locations either directly or indirectly entering the foreshores of Howe Sound at the Woodfibre LNG site. This presents a cumulative discharge that has a higher probability of:

- increased exceedances of copper, lead, zinc and vanadium;
- other metals, hydrocarbons (i.e., PAHs), and water quality parameters (i.e., pH, temperature, dissolved oxygen) at or below BC Water Quality Guidelines that together may add up to pollutant levels that equate to or exceed guidelines in the foreshore of Howe Sound near the Woodfibre LNG site.

The impacts on aquatic wildlife of excess metals, hydrocarbons, and water quality parameters outside of those deemed safe levels for aquatic life are reduced health and survival of

invertebrate (i.e., shellfish) and vertebrate life (i.e., fish and marine mammals) in Howe Sound and the Squamish River.

It is unclear if the upper sediments will be disturbed at the water sediment-interface in the Squamish estuary based on the description of the tunnel provided. This information is needed in order to determine if the tunnel boring could impact/destabilize the habitat of benthic/sediment dwelling species and species that rely on benthic invertebrates as prey. In addition, no description of the level of underwater noise pollution was offered, and this is of significance to both fish and marine mammals, in particular.

Resuspension of seabed sediments and water column mixing due to disturbance by LNG Carriers and associated tugboats have also not been considered in any WDA applications at this time for the Woodfibre Site. It is likely that the disturbance of metals and persistent organic pollutants due to construction and LNG carrier / tugboat traffic associated with Woodfibre LNG projects will further extend restrictions for fish and shellfish harvesting within the effluent plume of Woodfibre LNG's proposed wastewater discharge.

According to **Appendix B of FortisBC's WDA application at the BC Rail Site**, in May of 2016, the BC Ministry of Environment and Climate Change Strategy (BC ENV) issued a Risk-Based Certificate of Compliance for the BC Rail Site. The Risk-Based Certificate of Compliance allows for contamination in soil and groundwater which is above the BC Contaminated Sites Regulation (BC CSR) numerical standards to remain on the site.

This project will dewater and dispose of groundwater, thus there is the potential to draw down the groundwater from the area south of AEC 13 groundwater plume which may induce the plume to move.

The risks of not fully identifying the concentrations of contaminants present and the spatial extent of the light non-aqueous phase liquid (LNAPL) and groundwater contamination at the BC Rail Site are inappropriate water treatment and inability to achieve contaminant levels less than BC Water Quality Guidelines in effluents discharged. Additional, more comprehensive sampling at the BC Rail site is needed to better understand the contaminants present.

FortisBC has applied for a wastewater discharge rate of 515 m³/day, 24 hours per day, seven days per week. In **Appendix D of FortisBC's WDA application at the BC Rail Site** the effects of the wastewater discharges were assessed based on a maximum of 150 m³/day and 10 hours per day. Therefore, this discharge rate of 515 m³/day is approximately 3.4 times higher than that evaluated in the WDA, and 60% less in duration on a daily basis. Therefore, a revised assessment reflecting the actual proposed discharge rate of 515 m³/day is needed to accurately discern if the changes in water flows in the Squamish River due to the wastewater discharges from this project will have adverse effects on the survival of fish, other aquatic wildlife (i.e.,

benthic invertebrates, etc.) and abiotic factors important for river ecosystems (i.e., nutrient concentrations, total suspended particulate matter, etc.).

Both WDA proposals entail monitoring at weekly or monthly intervals to verify BC Water Quality Guidelines are met for these contaminants and water quality parameters. Therefore, some uncertainty in the levels of contaminants/quality of water discharged and the potential for exceedances of guidelines in discharged effluent may occur from one week up to one month in duration between monitoring prior to mitigation measures.

In both cases, most of the pollutants (metals, hydrocarbons, various water quality parameters) in the effluent are required to be measured weekly, which is sufficient. However, hydrocarbons are not required to be measured in receiving waters downstream of this discharge site, nor upstream. This is a limitation of this temporary authorization permit in light of the contamination of the BC Rail Site by hydrocarbons as well as WWTP hydrocarbon inputs.

Two main concerns for the recently provided temporary authorizations for these projects include:

- 1) Concentrations of flocculants (chitosan and Haloklear BHR-P 50) are not measured in this effluent or receiving waters. Considerable uncertainty exists surrounding the toxicity of these contaminants under low level, chronic exposure scenarios for aquatic wildlife; and
- 2) No environmental monitoring studies of aquatic life are required to verify that the ecological functioning of the Squamish River or Howe Sound receiving environment is or is not impaired, so this cannot be ascertained under this temporary authorization permit.

Recommendations

- Both of FortisBC's WDA applications reference 2021 BC Water Quality Guidelines and there are now updated guidelines published in 2023 that should be considered.
- Perform a cumulative impact study of FortisBC's two WDA applications **and** Woodfibre LNG's WDA application to a) determine the risk of combined hazards of multiple contaminants on aquatic life; and b) evaluate the combined impacts of historic, current, and proposed pollution on Howe Sound's ecosystem. This should include quantification of the sum of each predicted pollutant concentration in all three effluents, followed by assessing the risks of groups of pollutants with similar toxicological effects.
- Ensure **cumulative** contaminant concentrations from the **three WDA applications** do not exceed BC long-term water quality guidelines for pH, metals, organic pollutants, total suspended solids, hydrocarbons, and other toxic substances to ensure the protection of aquatic life in marine waters.
- Require the proponent to measure concentrations of Chitosan and Haloklear BHR-P 50 in wastewater effluents and in receiving waters weekly to monitor concentrations discharged into the environment. In addition, acute and chronic toxicity testing with invertebrate and fish species for these wastewaters discharged at a range of dilutions should be part of routine parameters measured under these WDAs.
- Require environmental effects monitoring of intertidal and subtidal biota to monitor fish and ecosystem health prior to and during the project.
- Require the proponent to provide clarity about potential disturbance at the water sediment interface in the Squamish estuary, and to provide mitigation plans if sediment disturbance is likely to occur.
- Require the proponent to estimate noise levels from construction of the tunnel under the Squamish estuary and evaluate the potential impact on biota. Require ongoing monitoring of noise levels at both project sites during construction.
- Require modeling of resuspension of seabed sediments and water column mixing predicted with LNG carrier and tugboat movement at the Woodfibre site, and consider the potential human health and environmental impacts of remobilizing historic and proposed pollutants, in particular, dioxins and furans.
- Conduct a multi-season effluent plume study to verify the geographic extent of contamination for both WDA applications.

- Require ongoing monitoring of groundwater drawdown and plume movement at the BC Rail Site, and a plan for enhanced wastewater treatment if necessary to ensure effluent quality is achieved.
- Require the proponent to provide a clear description of the water source and evidence that it is not contaminated to assess the hydrostatic testing phase of this project.
- Conduct more comprehensive sampling at the BC Rail Site to better understand the contaminants present.
- Require the proponent to clarify the disparity between their proposed discharge rate of 515 m³/day and the 150 m³/day discharge rate discussed in Appendix D, and conduct modeling to ensure that the proposed rate will not have adverse effects on the ecosystems or human health.
- Require ongoing monitoring of contaminants in fish and shellfish.
- Require additional plant and animal surveys to characterize the aquatic wildlife inhabiting Stream 'X' that may be impacted by the effluent discharge associated with the **FortisBC's WDA application at the Woodfibre Site.**
- Require the proponent to provide a thorough and clear plan for monitoring and mitigating acid rock drainage in order to fully assess **FortisBC's WDA application at the Woodfibre Site.**
- Require the proponent to conduct additional laboratory chronic toxicity tests measuring sub-lethal adverse effects known to affect wildlife health to comprehensively assess the longer term impacts of these complex, multi-chemical effluents for both WDAs, as prescribed under the Fisheries Act for metal and diamond mine effluents and pulp mill effluents in Canada.
- Require the proponent to conduct environmental monitoring of wildlife health (i.e., fish and benthic invertebrates) at and downstream of both WDA discharge sites to verify the ecological functioning of these receiving waters has not been impacted as prescribed under the Fisheries Act for metal and diamond mine effluents and pulp mill effluents in Canada.

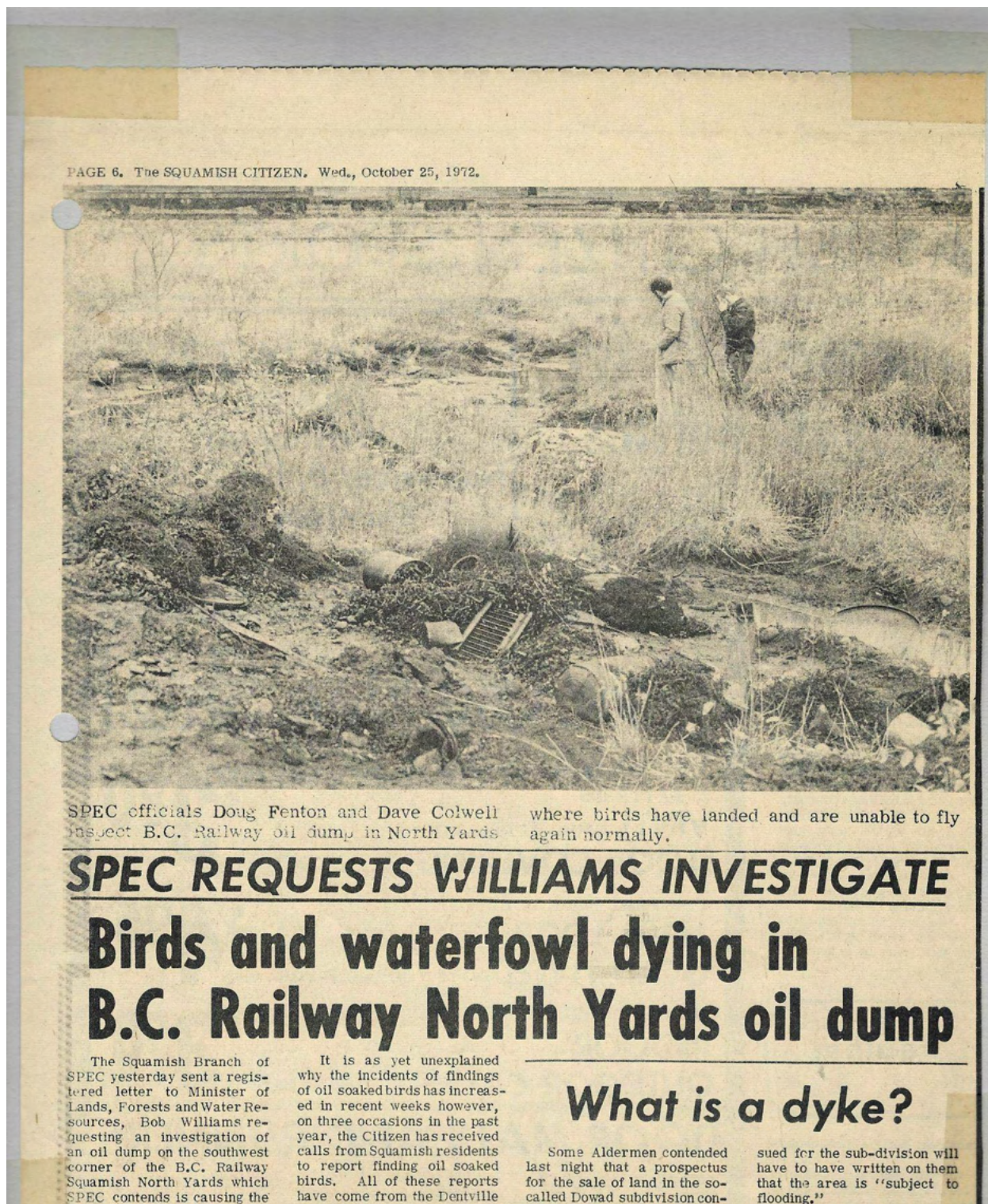
Acronyms

AEC	Areas of Environmental Concern
ARD/ML	Acid Rock Drainage/Metal Leachate
BCER	B.C. Energy Regulator
BC CSR	British Columbia Contaminated Sites Regulation
CEMP	Construction Environmental Management Plan
CPA	Certified Project Area
DFO	Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
EGP	Eagle Mountain to Woodfibre Gas Pipeline
MDMER	Metal and Diamond Mining Effluent Regulations
MWAL	Marine water aquatic life
LEPHw	Light extractable petroleum hydrocarbons in water
LNAPL	Light non-aqueous phase liquid
LNG	Liquefied natural gas
PAG	Potentially acid-generating
PAH	Polycyclic aromatic hydrocarbons
PBDE	Polybrominated diphenyl ethers
PCB	Polychlorinated biphenyls
POC	Parameter of Concern
PPCP	Pharmaceuticals and personal care products
TAR	Technical Assessment Report
TBM	Tunnel Boring Machine
TSS	Total suspended solids

UNESCO	United Nations Educational, Scientific and Cultural Organization
US EPA	United States Environmental Protection Agency
WDA	Waste Discharge Authorization
WLNG	Woodfibre LNG
WQG	Water Quality Guidelines
WWTP	Wastewater treatment plant

Appendix A

Newspaper clippings and letters regarding historic contaminants at the BC Rail site.





SPEC officials Doug Fenton and Dave Colwell inspect B.C. Railway oil dump in North Yards where birds have landed and are unable to fly again normally.

SPEC REQUESTS WILLIAMS INVESTIGATE

Birds and waterfowl dying in B.C. Railway North Yards oil dump

The Squamish Branch of SPEC yesterday sent a registered letter to Minister of Lands, Forests and Water Resources, Bob Williams requesting an investigation of an oil dump on the southwest corner of the B.C. Railway Squamish North Yards which SPEC contends is causing the death of many birds and waterfowl.

The investigation was requested as a result of several reports of oil-covered birds being reported within the last few weeks. These cannot be directly related to the B.C. Rail oil dump however when SPEC members went to take a closer look at the oil dump Sunday, a cursory check of it found four birds, totally soaked in oil, lying dead in pools of oil.

Sources at the B.C. Rail told the Citizen that the dump is used infrequently to get rid of certain types of oil. Several 50 gallon oil drums could be seen discarded in the immediate area.

Fenton told the Citizen that in certain light conditions birds could be attracted to the dump thinking it to be a small natural pond. Once in the oil, some may be lucky enough to escape, while others are not so fortunate.

It is as yet unexplained why the incidents of findings of oil soaked birds has increased in recent weeks however, on three occasions in the past year, the Citizen has received calls from Squamish residents to report finding oil soaked birds. All of these reports have come from the Dentville and North Yards area in close proximity to the oil dump.

Fenton said that the SPEC organization wants to see Williams' department look into the matter "because he is the man responsible for this area."

While at the site, Fenton suggested that construction and fill pouring which is going on less than a half a mile from the dump might provide an easy solution to the problem.

With cats and plenty of gravel at hand, he suggested it would be no trick to divert

equipment and material for a short time to have the oil dump area covered and filled thus eliminating the immediate problem. And SPEC is hoping that Williams will take action over the long run to prevent such a situation to develop again.

What is a dyke?

Some Aldermen contended last night that a prospect for the sale of land in the so-called Dowad subdivision contained references to the fact contained the protection of dyking.

The news came as part of a Public Works Committee Report on negotiations with Dowad on regulations covering the subdivision.

Aldermen have contended from the outset that the area along Highway 99 in the vicinity of the old Horse Ranch is subject of flooding.

They say that rock along the river in the area is only rip-rapping and in no way serves as a dyke.

Alderman Ray Bryant said, "We talked to him for a half an hour to try and get through to him that the rock is not a dyke." The Mayor and other Aldermen agreed that it is not.

The Council agreed earlier and reaffirmed last night that all building permits is-

sued for the sub-division will have to have written on them that the area is "subject to flooding."

Local mine prospect starts up

Work has begun on a copper mine prospect located just south of Squamish near highway 99.

Kismet Mining Corporation Ltd., announced Monday that it has begun diamond drilling on the property.

The drilling was begun after preliminary tests with a portable drill produced cores from several shallow depth holes which a spokesman for the company said averaged better than one per cent copper.

The Kismet property is composed of 20 claims.



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l'Environnement

1090 West Pender Street,
Vancouver 1, B.C.

October 24, 1972

Your file *Votre référence*

Mr. D. Morrison,
Box 333,
Garibaldi Highlands.

Our file *Note référence*

Dear Mr. Morrison:

Further to our conversation of October 23, 1972, please find enclosed a reprint on the subject of cleaning oil soaked birds.

As a word of caution on the handling of migratory birds, I draw your attention to Section 6 of The Migratory Birds Convention Act, which states:

- "6 (1) No person shall
- (a) ----
 - (b) have in his possession a live migratory bird, or a carcass, skin, nest or egg of a migratory bird except under authority of a permit therefor."

I would be most interested in the results obtained with the use of the enclosed cleaning treatment.

Yours sincerely,

s. 22(1)

G.L. March, Ph.D.

The famous Bird-Washing Routine.

Dr. Naviaux, 415-939-3456.

Chevron's isoparaffin-150, 37°C f.p.
or Shell sol-70, 104°C f.p.

5 wash basins, at least 5 gallons per bird,
all solvent hand hot or warm.

1-2 pans — slosh off bulk of oil while immersing
pan 3 — pour solvent over bird.
4-5 pans — immerse & rinse.
then towel off & blow dry!

Dr. March, 666-1082 of Dept of Environment
has heard only of the hot detergent method.

If sick — delta abloplex by UpJohn is okay.
Feed as to cat.

Chevron — Bob Grant.

Shell — Ben Hubbard 898-3001
Jim Sanderson

Mike Butchkowski, 939-1363.

Brian Avis, 936-9317, home.
685-5155, bus. 1075 W. Geo

Polycomplex A-11 — Tom McKay
Western Complex Distributors.

Migratory Birds Act, p. 20, sect. 35, subsect.
"No person shall ... oil ... waters ...
frequented by migratory birds."

Doug Morrison, Box 333
Garibaldi Highlands, B.C.

Secretary, Squamish Ecological Organization

Saturday, 28 October 1972

Mr. Wakely, OR
Mr. Cakes
Engineering
B.C. Railway
1311 West 1st
North Vancouver, B.C.

Gentlemen:

Our attention has been drawn, this week, to the existence of waste oil pools in the 'North Yards' of Squamish B.C. Railway, approximately halfway between the shops and the 'Dentville' crossing.

The oil pools, approximately a foot deep, are of such size as to attract local and migratory birds, and small songbirds.

The birds land on the oil, apparently thinking it water, and become stuck. They then die of suffocation, starvation or exposure.

I am informed by Mr. Stan Goad of Motive Power, Squamish, that the filling of this area, to cover the oil, would fall in your area of responsibility.

Further, I am aware that one of your contractors, John Hunter Co., is presently hauling fill in the North Yards for another project.

Would you please authorize one of your contractors to fill and cover all oil pools immediately, and with all possible haste, to avoid further hazard to birds.

Thank you.

Yours very truly,

s. 22(1)

Doug Morrison, Secretary
Squamish Ecological Organization

Enclosures and copies: Dr. G. L. March, Environment Canada.

Dr. G. L. March
Environment Canada
1090 West Pender Street
Vancouver 1, B.C.

Dear Dr. March:

I would like to update our conversation of a few days ago.

(1) Thank you for the Newcastle report.

On the basis of my later conversation with Dr. James Naviaux *

* James L. Naviaux, D.V.M.
Director, National Wildlife Health Foundation
Chairman, Wildlife Subcommittee
California Veterinary Medical Association

450 Boyd Road, Pleasant Hill, California 94523.

I concluded that we should use a solvent method of cleaning the bird (a green-winged teal), and accordingly used blood-warm barbecue charcoal starting fluid as a closely-related substitute for the Isoparaffin-150 & 350 and Shell Sol 70 used by the California group.

After drying, the bird's plumage immediately took on its proper brilliant, fluffy appearance, and the bird's feeding and activity improved enormously.

Because of its earlier washing with kerosene and detergent (done by the child who brought in the bird) and accompanying physical abuse to the feather structure, however, the bird is not yet completely water-repellent. We intend to keep the bird indoors until Monday, and will then transfer him to a pen in our Squamish Nature Sanctuary (We used this pen for a pair of Canada geese, a pair of wood-ducks, and four mallards earlier this summer, to accustom them to the area, after transfer from Richmond, under our District of Squamish Propagation Permit.)

In this pen he will have access to food, shelter from the rain, and a good area of swimming water. If his water-repellency seems good after another two or three days, we will release him.

As far as treatment of any oiled birds brought to us in the future goes, we have had 50 gallons of Chevron Isoparaffin-370 brought in from Vancouver, so we can be prepared. We hope we will have no further trouble with the B.C. Railway after the next week, but there will probably be an increasing threat from the development of shipping in Squamish harbour.

I might mention briefly that, in addition to the ability to dissolve oils, desirable characteristics of the solvents used are:

- (a) no aromatic content (must be 0%, or damage to bird ensues.)
- (b) moderately high flash point (the Shell Sol 70 and Isoparaffin 350 & 370 have flash points well over 100°F.; the Isoparaffin 150 has a flash point of only 37°F., which makes it somewhat hazardous to use.)

I urge you most strongly to write to Dr. Naviaux at the above address for copies of his 60 page booklet, "After Care of Oil Covered Birds", at \$3.50 each.

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I urge you most strongly to write to Dr. Naviaux at the above address for copies of his 60 page booklet, "After Care of Oil Covered Birds", at \$3.50 each.

(Part two, on the immediate problem of our B.C. Railway oil pools, continued on page two.)

Doug Morrison, Box 333
Garibaldi Highlands, B.C.

11 November 1972

Mr. Cakes
Engineering
B.C. Railway
1311 West 1st
North Vancouver, B.C.

Dear Mr. Cakes:

Thank you for your quick action in filling and covering
the oil pools in the Squamish North Yards.

This has no doubt saved many birds from an untimely death.

Thanks again.

Yours very truly,

s. 22(1)

Doug Morrison, Secretary
Squamish Ecological Association

Copies: Dr. G. L. March, Environment Canada

(page two, to Dr. March, Environment Canada)

(2) The B.C. Railway, Squamish, oil pools:

Location: Squamish 'North Yards', on a little used siding, about half-way between the buildings complex and the 'Dentville' crossing.

Nature of pools: This is apparently an old oil dump, with most of the oils settling on one side of the track in foot-deep pools of sufficient size to attract local and migratory birds such as ducks and snipe, as well as small songbirds.

The birds apparently land on the pools, thinking them water, and become mired, and thereby either suffocate, starve or die of exposure.

Casual investigation of the area turned up approximately half a dozen migratory bird carcasses and about the same number of songbird carcasses, although more detailed investigation might show that the bottoms of these pools are lined with such carcasses.

The oil pools would appear to contravene section 35, subsection 1 of the Migratory Birds Act which states: "... no person shall deposit or permit the deposit of oil, oil wastes, or any other substance harmful to migratory birds in any water or any area frequented by migratory birds."

I am writing simultaneously to Mr. Wakely and Mr. Oakes of Engineering, B.C. Railway, North Vancouver, the two men authorized in this area of responsibility, encouraging them to take immediate action to fill this area of the yards and thereby eliminate the open pools of oil.

One of their contractors, John Hunter Co., is presently at work hauling fill for a project in the North Yards, and could easily haul in sufficient fill to eliminate the pools of oil, well before the end of this week, that is, before November 3, 1972.

I look forward to their immediate action, and will notify you further.

Please contact me again during working hours at Howe Sound High School, 892-5261 if you wish further immediate information on matters (1) or (2).

Best wishes.

Yours very truly,

s. 22(1)

Doug Morrison, Secretary
Squamish Ecological Organization

Enclosures and copies: Mr. Wakely & Mr. Oakes, B.C. Railway, North Vancouver.

From: s. 22(1)
Sent: Tuesday, January 2, 2024 9:42 AM
To: correspondence
Subject: West Van Application
Attachments: Business License App. Renewal (1).pdf

CAUTION: This email originated from outside the organization from email address s. 22(1) Do not click links or open attachments unless you validate the sender and know the content is safe. If you believe this e-mail is suspicious, please report it to IT by marking it as SPAM.

--
Best reg



s. 22(1)

to correspondence s.22(1)



Hi,

Please see attached application for business license in West Vancouver.
We are planning to start a renovation (via Strata/ City of West Vans approval) but in order to fully start we would like to get the business license completed as soon as possible.
I believe our company Yan's Construction LTD had one way back in 2014 but it expired so I have attached a new application for the City's approval.

Cheers

s. 22(1)
Project Manager



#2180-1851 Savage Road
Richmond, B.C. V6V 2R6

s. 22(1)
office | (604) 207-2499
BLOCKEDexcelwoodworking[.]caBLOCKED

ACCOUNT# _____ LICENCE# _____

OFFICE USE ONLY

BUSINESS LICENCE APPLICATION

BYLAW AND LICENSING SERVICES
 750 17th Street, West Vancouver, B.C. V7V 3T3
 t: 604-925-7152 | f: 604-925-7451 | e: bylawdept@westvancouver.ca

Application Type: New Business/Ownership Change Address Change Name Change Home-based Business
 Contractors: Inter-municipal – W.V. Residents Only Out of Town Liquor Licensed Restaurant

PLEASE PRINT

Applicant Name: s. 22(1)
 (Licencee name, owner's personal name if unincorporated – corporate/limited name if incorporated)

Mailing Address: s. 22(1)
 (for invoicing and licensing correspondence)

civic (unit)	house no.	street	city	postal code
s. 22(1)				
business phone number	cellular	email		

Business Operating Name: Yan's Construction LTD
 (Trade name – name of business that differs from registered legal name of business)

Location of Business: #2180-1851 Savage Road, Richmond, V6V 2R6

civic	house no.	street	city	postal code
604 207 2499			s. 22(1)	
business phone number	cellular	email	fax	

Manager/ Local Contact: s. 22(1) s. 22(1)
 Full name manager's phone

Business Description: Contractor/ Renovation Specialist

West Vancouver Business Start or Opening Date: s. 22(1) / Total Square Footage: _____
 month day year

Number of employees working in the District of West Vancouver: s. 22(1)
 Contractors – Please provide a copy of Driver's Licence and certification TQ/LEL/SA/LGA # s. 22(1)

West Vancouver businesses - Are you renovating or altering the premises? Yes No Building Permit # TBD

I HEREBY make application for a Business Licence in accordance with the particulars stated above and declare that these statements are true and correct and further, I understand if a licence is granted I will comply with all bylaws and regulations of The Corporation of the District of West Vancouver.
 I UNDERSTAND that I will be subject to fines if I open and/or operate without having received all necessary building, bylaw, health, and/or fire inspections and all necessary permits prior to the final licence inspection and prior to the issuance of a Business Licence.

Applicant Name: s. 22(1) Signature: s. 22(1) Date: s. 22(1) /
 month day year

Freedom of Information and Protection of Privacy Notice of Collection and Use: Your personal information is collected by the District of West Vancouver under section 26(c) of the Freedom of Information and Protection of Privacy Act and will be used to process your business licence application. If your business is located within the Ambleside-Dundarave Business Improvement Area, Business Operating Information provided in your business licence application (the address of your business, its operating name, and the name of the individual who applied for the business licence) will be provided to the Ambleside-Dundarave Business Improvement Association (ADBIA). To learn more about the ADBIA please contact 604-210-3500 or email info@adbia.ca.

SEE REVERSE →

OFFICE USE ONLY

Call number _____ Approved _____ Date approve s. 22(1)

BUSINESS LICENCE APPLICATION | PAGE 2

WEST VANCOUVER ZONING BYLAW NO. 4662, 2010 Section 130.04 - Home Based Business

- 1) Where permitted, a home based business is subject to compliance with the following regulations:
 - a) No non-family member, and no more than two (2) persons of an immediate family shall be in any way engaged, occupied or employed to work on or from the premises in connection with such home based business, and such family persons shall reside in the dwelling.
 - b) No goods, wares, merchandise or other commodities shall be sold directly in, or upon, or from the premises, other than a home based artist studio, which is permitted to sell artwork and crafts produced on the same premises.
 - c) No stock-in-trade, materials, supplies or goods related to the home based business shall be kept or stored outside any building on site.
 - d) No more than one vehicle shall be used in connection with the home based business and no such vehicle shall be in excess of 2,268 kilograms gross vehicle weight.
 - e) The home based business shall not generate more than one client to the site from which the business is being operated at any given time or cause more business related vehicle trips to the home than is normal in a residential area.
 - f) The home based business shall not contribute or cause any noise, heat, glare, odour, electrical interference or other nuisance to the immediate neighbourhood.
- 2) Notwithstanding the provisions in this Section, a physician's office is permitted within dwellings in the RD1, RD2, RM1 and RM2 zones.
- 3) Bed and Breakfast is defined and regulated separately and is not a home based business for the purposes of this Zoning Bylaw.
- 4) Without limiting the generality of this section, the following are not permitted as home based businesses:
 - a) orchestra or band training;
 - b) places of public assembly;
 - c) restaurants;
 - d) notwithstanding section 130.04(1)(b), retail sales directly from the site;
 - e) schools or recital areas;
 - f) stables or kennels for the boarding and breeding of animals; and
 - g) salvage or repair of vehicles.
- 5) All client parking associated with the home based business shall be accommodated on-site.
- 6) The operator of the home based business is responsible for complying with all applicable health and safety regulations.

I HAVE UNDERSTOOD AND WILL COMPLY WITH WEST VANCOUVER ZONING BYLAW NO. 4662,
SECTION 130.04

Signature

From: Weiler, Patrick - M.P. <Patrick.Weiler@parl.gc.ca>
Sent: Wednesday, December 20, 2023 2:03 PM
To: Weiler, Patrick - M.P.
Subject: [Possible Scam Fraud]Letter from MP Patrick Weiler - 2024 Canada Summer Jobs (CSJ) Employer Application Period
Attachments: Letter from MP Patrick Weiler - 2024 Canada Summer Jobs (CSJ) funding application launch.pdf

CAUTION: This email originated from outside the organization from email address Patrick.Weiler@parl.gc.ca. Do not click links or open attachments unless you validate the sender and know the content is safe. If you believe this e-mail is suspicious, please report it to IT by marking it as SPAM.

WARNING: Your email security system has determined the message below may be a potential threat. The sender may propose a business relationship and submit a request for quotation or proposal. Do not disclose any sensitive information in response. If you do not know the sender or cannot verify the integrity of the message, please do not respond or click on links in the message. Depending on the security settings, clickable URLs may have been modified to provide additional security.

Good afternoon,

Please see the attached letter from MP Patrick Weiler regarding information on the 2024 Canada Summer Jobs (CSJ) employer application period.

Sincerely,
Kevin Hemmat



Kevin Hemmat
Office of Patrick Weiler MP
Director of Communications
West Vancouver-Sunshine Coast-Sea to Sky Country
Office: 604-913-2660
Cell: 604-353-2550
Kevin.Hemmat.842@parl.gc.ca



Before printing this e-mail, think about the Environment



HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

Patrick Weiler

Member of Parliament
West Vancouver-Sunshine Coast-Sea to Sky Country

December 20, 2023

Dear Friends & Neighbours,

If you have not already received the news, I would like to inform you that the **2024 Canada Summer Jobs (CSJ) employer application period is now in full swing.**

Employers from not-for-profit organizations, the public sector, and private sector organizations with 50 or fewer full-time employees in Canada can **apply for funding until January 10, 2024**, to hire young Canadians next summer. Full-time job placements will become available starting in April 2024.

CSJ 2024 will aim to create 70,000 summer jobs for young Canadians, with an emphasis on creating jobs for youth facing barriers to employment. This is part of the over 140,000 opportunities that the Government of Canada aims to create for youth this year.

Each year, the Government establishes national priorities for CSJ to reflect Canada's diverse population and evolving needs. The priorities for CSJ 2024 are:

- Youth with disabilities or with organizations that provide services to persons with disabilities;
- Youth that are underrepresented in the labour market, including:
 - Black and other racialized youth
 - Indigenous youth
 - 2SLGBTQI+ youth
- Youth in rural areas, remote communities, or official language minority communities;
- Jobs that provide exposure or experience related to the skilled trades, which may include opportunities in the residential construction sector; and
- Sustainable jobs that support the protection of the environment or delivering positive environmental outcomes.

Here in our riding, CSJ also supports our local priorities, which are focused on projects that support:

- Projects supporting not for profit organizations
- Management of companies and enterprises
- Health care and social assistance
- Arts, entertainment and recreation
- Agricultural, forestry, fishing and hunting

Constituency Ottawa

6367 Bruce Street Suite 282, Confederation Building
West Vancouver 229 Wellington Street, Ottawa

British Columbia V7W 2G5 Ontario K1A 0A6

Tel.: 604-913-2660 | Fax.: 604-913-2664 Tel.: 613-947-4617 | Fax.: 613-847-4620

Employers interested in applying for CSJ 2024 funding are encouraged to submit their applications electronically on the [Grants and Contributions Online Services \(GCOS\)](#) portal. Creating a GCOS account is a one-time process that allows organizations to apply for various Employment and Social Development Canada funding opportunities in a secure web environment.

The CSJ program is one of two programs that Employment and Social Development Canada delivers under the [Youth Employment and Skills Strategy](#) (YESS). Delivered in partnership by 12 federal departments, agencies and Crown corporations, the YESS is a horizontal Government of Canada initiative that supports youth between the ages of 15 and 30 to gain the work experience and develop the skills they need to successfully transition into the labour market. In early October, the Government launched a [call for proposals under Employment and Social Development Canada's YESS Program](#) to fund projects that support youth who are facing barriers to employment.

For more information about the CSJ program, including the eligibility criteria and the Applicant Guide, go to Canada.ca/canadasummerjobs, visit a Service Canada office or call 1-800-935-5555.

For any questions about the CSJ program in our riding, please do not hesitate to reach out to our CSJ contact, Kiran Dhaliwal, who can be reached at kiran.dhaliwal.842@parl.gc.ca.

Our office is happy to support your application in any way that we can.

Sincerely,

A handwritten signature in blue ink, appearing to read 'P. Weiler', with a stylized flourish at the end.

Patrick Weiler, MP
West Vancouver-Sunshine Coast-Sea to Sky Country

From: Patrick Weiler MP <patrick.weiler@parl.gc.ca>
Sent: Friday, December 29, 2023 5:00 PM
To: correspondence
Subject: [BULK] December 2023 MP Newsletter

CAUTION: This email originated from outside the organization from email address bounce_ee2043c3-aea6-ee11-bea1-002248221f54_prod@bounce.myngp.com. Do not click links or open attachments unless you validate the sender and know the content is safe. If you believe this e-mail is suspicious, please report it to IT by marking it as SPAM.

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Patrick Weiler
Member of Parliament for West Vancouver-
Sunshine Coast-Sea to Sky Country

DECEMBER 2023 NEWSLETTER

@patrickbweiler patrick.weiler@parl.gc.ca
604 913 2660

Dear Mayor and Council,

As we approach 2024, many of us are enjoying time with friends and family, looking back at the year that was and the year ahead. I recently shared my Year in Review in our community [newspapers](#), highlighting some of the accomplishments in 2023 and what we want to deliver in the new year. I invite you to take a read, watch the video version below, and share your thoughts on priorities for 2024.



This December, the Government of Canada launched the Canadian Dental Care Plan (CDCP), which will help ease financial barriers to accessing oral health care for up to nine million uninsured Canadian residents with an adjusted family net income of less than \$90,000 who do not have access to dental insurance. Canadians who are enrolled in the CDCP will be able to start seeing an oral health provider as early as May 2024, starting with seniors. For more information on eligibility and the timeline for the program's rollout, [please see this page](#).

This month, largely coinciding with COP 28 in Dubai, we made some important announcements in Canada's fight against climate change through three regulatory measures. On December 7, we introduced Canada's draft framework to [cap pollution from the oil and gas sector](#), ensuring we reduce emissions from our largest source, while remaining competitive in a shifting global market. This follows a [letter I sent to the Prime Minister and Cabinet urging the government to action](#) this policy with the urgency it deserves. Canada will be the first country in the world to introduce a cap on oil and gas emissions. We are also showing global leadership by reducing methane emissions from the oil and gas sector, [announcing at COP28 that we will do so by 75% by 2030](#). On December 19, we announced the [finalized, new Electric Vehicle Availability Standard](#), which will require automakers to gradually increase the share of new zero emission vehicles they sell in Canada. The \$5,000 in federal purchase incentives, together with the up to \$4,000 provincial incentive brings EV prices in line with gas vehicles, while allowing drivers to save at least a few thousand dollars each year on operating the vehicle.

As we wrap up this year, I was pleased to be back home for most of the month to make some important funding announcements; from delivering \$12 million across six projects dedicated to conserving and restoring aquatic ecosystems in BC, [including a project on the Coast](#), and [funding for the Squamish River Watershed Society and the Lil'wat Nation](#) through the British Columbia Salmon Restoration and Innovation Fund.

I also had the opportunity to announce a series of housing projects, including [funding for Pearl's Place Transition House](#) in Squamish to help those fleeing gender-based

violence, and repairs for existing affordable units in Mount Currie, where we saw [\\$1.5 million in federal funding in action for 23 affordable housing units](#) which are managed by Lil'wat Nation.

It was also a pleasure to connect with our incredible Constituency Youth Council during our last 2023 meeting. I want to thank them for all their hard work this year and can't wait to work with our new cohort in the year ahead!

As we say goodbye to 2023, I hope everyone had a Merry Christmas, a wonderful holiday season, and I wish you and your loved ones a very Happy New Year! I look forward to connecting with you in 2024!

Merry Christmas & Happy Holidays



Canadian Dental Care Plan

Oral health is essential to our overall health, but we know how expensive it can be. A third of people living in Canada do not have dental insurance, and, in 2022, one in four Canadians reported avoiding visiting an oral health professional because of the cost. Delaying dental care can have wide-reaching impacts, including more expensive treatments and worsening health outcomes. I have heard from so many constituents across our communities who have shared their struggles with accessing dental care and want to see action to address this gap in our healthcare system.

That is why the Government of Canada is launching the Canadian Dental Care Plan (CDCP), which will help ease financial barriers to accessing oral health care for up to nine million uninsured Canadian residents with an adjusted family net income of less than \$90,000 who do not have access dental insurance.

To meet anticipated demand and ensure a smooth onboarding process, the CDCP will be rolled out using a phased approach over the coming months, starting with seniors - see below.

The CDCP will help cover the cost of various oral health care services, on the recommendation of an oral health care provider. Examples of these services include preventive care such as scaling (cleaning), polishing, as well as other services such as exams, x-rays, fillings, removable dentures, and root canal treatments.

For more information and to see when you can apply, [see this page](#).

CANADIAN DENTAL PLAN: KEY DATES

GROUP	APPLICATION OPENS
SENIORS 87+	STARTING DECEMBER 2023
SENIORS 77-86	STARTING JANUARY 2024
SENIORS 72-76	STARTING FEBRUARY 2024
SENIORS 70-71	STARTING MARCH 2024
SENIORS 65-69	STARTING MAY 2024
PEOPLE WITH A VALID DISABILITY TAX CREDIT CERTIFICATE	STARTING JUNE 2024
CHILDREN >18	STARTING JUNE 2024
ALL REMAINING ELIGIBLE CANADIANS	STARTING 2025

Legislative Updates

We wrapped up the fall parliamentary session in mid-December, having passed key pieces of legislation and advanced policy priorities, including:

Bill C-56 received royal assent, cutting the GST on new apartment construction, as well as amending the Competition Act to eliminate the efficiencies defence to anti-competitive mergers, creating the ability of the minister to direct the bureau to undertake a market study to examine competitiveness concerns, and expanding the scope of anti-competitive behaviour the bureau can investigate.

Bill C-57, updating the existing Canada-Ukraine Free Trade Agreement (CUFTA) to creates new jobs and opportunities for both countries while also supporting Ukraine's economic recovery, national security, and stability.

Bill C-58, which bans the use of replacement workers, making it illegal for employers in federally regulated industries to bring in replacement workers to continue operations

previously done by unionized employees during a legal strike or lockout. This is an important victory for labour rights in Canada.

Bill C-244, amending the Copyright Act to support the right to repair. The bill allows people to circumvent technological protection measures (TPM) when maintaining or repairing a product, so that they can keep existing products instead of being forced to buy new ones.

Bill C-21 received royal assent, enacting several measures to combat gun violence, including the national handgun freeze, new “red flag” laws, and increased penalties for firearms smuggling and trafficking. This legislation addresses the alarming role of firearms in domestic and gender-based violence and helps keep firearms away from those who pose a danger to themselves or others.

Overcoming Conservative Obstruction

Prompted by a Conservative filibuster, on December 7th, we voted non-stop for 30 hours to advance legislation and ensure that our government can continue to support Canadians. We were proud to stand our ground on key priorities, yet the Conservatives disappointingly voted against:

- ✗ the construction of 71,000 new rental homes
- ✗ cracking down on terrorism financing
- ✗ providing military training to the Ukrainian army
- ✗ combatting the tragic toxic illegal drug and overdose crisis
- ✗ women’s economic participation
- ✗ funding for the Vancouver Jewish Community Centre and for the Holocaust Museum in Montreal

Finance Committee

In Finance Committee, we have continued our housing study and pre-budget consultations. We have heard from a variety of witnesses on what to include or amend in the upcoming budget. We will continue this work in the new year as we work towards presenting Budget 2024. Keep an eye out as I will be hosting some local consultations to hear from constituents on what you want to see in the Budget.

Canada's Oil and Gas Cap

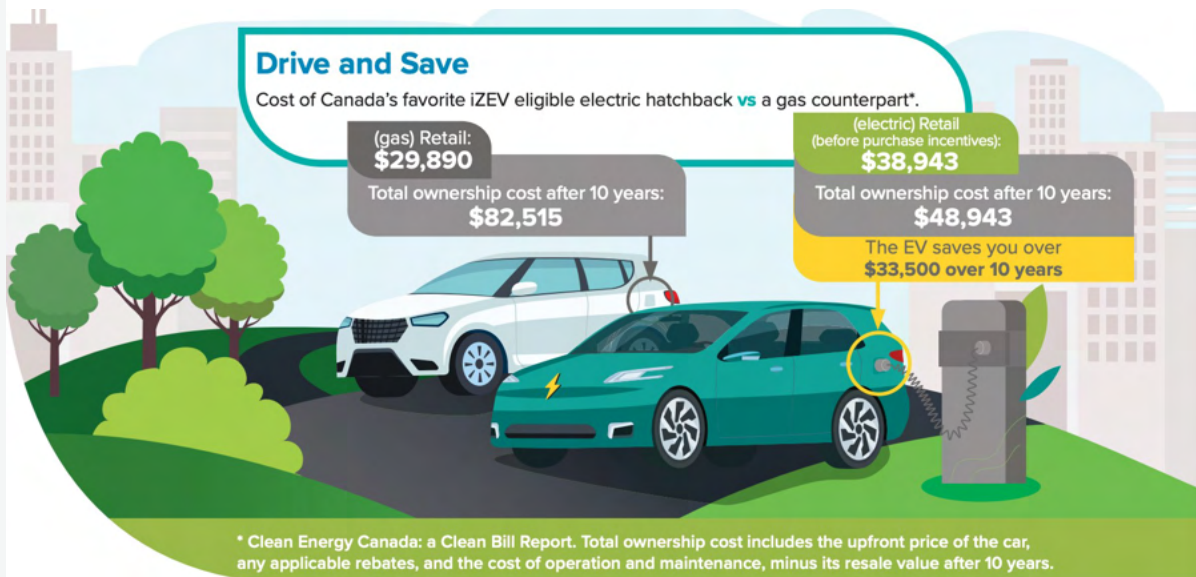
This month, we introduced Canada’s draft framework to cap emissions from the oil and gas sector. This is critical because the oil and gas sector is the largest and fastest growing source of emissions in Canada at ~28%. The framework proposes to cap 2030 emissions at 35 to 38 percent below 2019 levels. The greenhouse gas pollution cap puts a limit on the amount that the sector can pollute and will be key to making sure we reduce our emissions as a country, on the road to reaching net zero by 2050, and encouraging industry to finally invest in reducing its emissions. I look forward to working with colleagues to ensure this cap is as robust as possible.

Reducing Methane Emissions

At COP28, we announced a regulation to reduce methane emissions in the oil and gas sector by at least 75% by 2030. Reducing methane emissions is important because it is 80 times more potent than carbon dioxide as a greenhouse gas over the first 20 years. Reducing these emissions are widely understood to be some of the lowest cost measures available. To better assess the actual methane emissions, we are also funding a new Centre of Excellence to ensure Canada has the best possible information to underpin its climate action.

Electric Vehicle Availability Standard

On December 19th, we announced that Canada has finalized its new Electric Vehicle Availability Standard to increase the supply of clean, zero emission vehicles available to Canadians across the country. This Standard will ensure that Canadians have access to the latest affordable and technologically advanced vehicles coming to market in the next few years, as we work towards our commitment of new vehicle sales to be 100% zero emission by 2035. The switch to electric is good for our environment as it reduces emissions and other harmful air pollution and are much more affordable in the long run. Our Standard will help our domestic EV requirements keep up with those of other major economies including the US, the UK and the European Union. It also dovetails nicely with British Columbia, which has introduced a similar provincial mandate, leading to BC already surpassing the 20% threshold Canada set for 2026 with 26% of new vehicles sold in the last quarter being zero emission.



Community Updates: Sea to Sky

As this year comes to an end and we patiently wait for snow, keen skiers and snowboarders are busy hitting the slopes at Whistler Blackcomb. Thousands turned out to see the Downtown Squamish Business Improvement Association's very popular Holiday Parade which saw floats as well as Santa and Mrs. Claus in their new sleigh crafted by the Squamish Men's Shed.

Congratulations to the Whistler Film Festival Society for a successful 23rd annual festival and this year's talented award winners. I am so grateful that local and

international filmmakers had the chance to showcase their amazing work right here in Whistler. I hope to see you all at the Whistler Film Festival next year.

Happy Hanukkah

Thank you to the Jewish communities in Whistler and Squamish for inviting me to join you for Hanukkah celebrations! Hanukkah is a time to come together with friends and family to enjoy good company, food, and to celebrate spreading light over darkness, a message that is more important this year than ever.

A special thank you to the kids for reminding me how to play dreidel - I'll make sure I am trained up for next year! Chag Hanukkah Sameach!



Supporting Housing in the Sea to Sky



This month, we were able to announce an investment of over one million dollars from the National Housing Co-Investment Fund to support the Pearl's Place Transition House Expansion project. Funding allowed for renovations that provided an additional five beds and is now able to accommodate 12-15 women, Two-Spirit, gender diverse, non-binary, trans people, and their children and pets who have experienced violence or otherwise unsafe living conditions. These kinds of investments are transformational for our communities. Thank you to PearlSpace for their life changing work and commitment to rebuilding the lives of women and children in the Sea to Sky.

Investing in Indigenous Housing

I would like to express my deepest gratitude to the Lil'wat Nation and the Murphy Construction team for taking the time to meet and give me a tour of some of the renovated housing projects in Mount Currie. Some of which were built in 1984 and with over \$400,000 from the National Housing Co-Investment Fund, they received significant upgrades to make them safer and more comfortable to live in. Thank you to the kind residents who invited us inside to show us the renovations and share how they have made a difference in their lives.



Community Updates: West Vancouver & Bowen Island

Final 2023 CYC Meeting



I want to highlight the extraordinary group of young people who make up my Constituency Youth Council (CYC). It was a pleasure to connect with them on December 20 for our last meeting for the 2023 term. I want to thank them all for their hard work, delivering key projects such as our community youth survey and writing a mock bill on improving transit accessibility in semi-rural communities like ours. I wish them all the best and look forward to convening the 2024 CYC in January.

Announcing Funding to Protect Wild Pacific Salmon & our Fisheries



Salmon is critical to BC for many reasons, and I know it is important to many of my constituents. Earlier in December, I joined Diane LeBouthillier, Minister of Fisheries, as well as other BC MPs for an [announcement of over \\$86 million](#) for 58 projects across the province to protect salmon populations and the fisheries they support under the second phase of the British Columbia Salmon Restoration and Innovation Fund (BCSRIF). This included funding for the Squamish River Watershed Society and the Lil'wat Nation who play a vital role in protecting our local wild Chinook and Coho salmon stocks. We will continue to support organizations which protect our salmon.

Tour of Chinese Canadian Museum and Roundtable



On December 14, I joined MP Wilson Miao and Mary Ng, Minister of Export Promotion and International Trade, at the Chinese Canadian Museum for a tour and a roundtable with local business owners. The Chinese Canadian Museum officially opened its doors on July 1st 2023 after years of work to build a public museum honouring Chinese Canadians' history, contributions, and heritage. Chinese-Canadians have contributed immensely to our country but they faced decades of systemic discrimination and exclusion. The only way to not repeat the past is to learn from it, and I encourage everyone to visit this museum.

Announcing Community Investments in West Vancouver

The Government of Canada is continuing to work with municipalities to create more vibrant, active, and healthy communities. I had the pleasure of announcing federal funding in West Vancouver to improve local tennis courts and hiking trails, which will help residents and visitors alike stay active and enjoy the natural beauty that our community is known for. Projects like these demonstrate what is possible when all orders of government work together.

Community Updates: Sunshine Coast

Protecting Coastal Ecosystems



On December 1st, I had the pleasure of announcing federal funding of just over \$1 million for the Sunshine Coast four-year kelp restoration project. This is a project that is led by the British Columbia Conservation Foundation (BCCF), working with the shishalh and Tla'amin Nations, and it is part of the Aquatic Ecosystems Restoration Fund that will be providing more than \$12 million in funding to six projects. Rapidly changing climate is disrupting the ecological balance that much of our aquatic life depends upon and together with historic habitat losses, many of the species that coastal communities rely on are facing dire challenges if left unchecked. The Government of Canada is committed to taking action to restore and safeguard the health of our ocean and freshwater ecosystems, and I am thrilled that the Sunshine Coast Kelp Restoration Project has been recognized for their integral work in this area.

Also on the Coast, the annual December Festival of Lights Parade brought out over 30 businesses and organizations to deliver a spectacular parade with a show of creativity and colourful decorations. The parade brought people of all ages from across the Coast to sing Christmas carols and enjoy the parade. I want to send a warm congratulations to what I understand was a night to remember!

Congratulations as well to the Sunshine Coast as the first wave of the newly named Sunshine Coast All Stars, Coastal Tsunami, took to the ice with the Canucks Alumni Team. Playing to a sell out crowd, it is so exciting to see people of all ages coming together to enjoy a fun filled experience of great hockey in their own back yard.

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VANCOUVER**

**OFFICE HOURS: WEEKDAYS
10AM-5PM**

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