

From: Kreye, Ross A FLNR:EX [<mailto:Ross.Kreye@gov.bc.ca>]
Sent: December-16-13 9:32 AM
To: Brown, Carrie
Cc: Berardinucci, Julia F FLNR:EX; Rosenboom, Remko FLNR:EX; Barrett, Scott FLNR:EX
Subject: Port Metro Vancouver Project Update: Fraser Surrey Docks Direct Transfer Coal Facility

Carrie, with regards to the public review and comment period on the Environmental Impact Assessment as below, FLNR South Coast Region will not be submitting any further comments beyond what has already been provided.

Thank you for the opportunity to comment.

Ross Kreye
Section Head
Regional Initiatives Office
South Coast Region
Ministry of Forests, Lands and Natural Resource Operations
Phone: 604-586-4414

From: Nicole Cote [<mailto:nicole.cote@hc-sc.gc.ca>]
Sent: December-16-13 12:45 PM
To: Desjardin, Darrell; Brown, Carrie
Cc: Patterson, Michelle; Gregory Kaminski; Gladis Lemus; Daniel.Wolfish@hc-sc.gc.ca; Henry Ip; Dekovic, Marko
Subject: Re: Port Metro Vancouver Project Update: Fraser Surrey Docks Direct Transfer Coal Facility

Dear Mr. Desjardin:

I am pleased to respond to your communication of November 28, 2013, concerning the posting, for 30 day public comment period, of the Environmental Impact Assessment (EIA) study related to the proposed direct transfer coal facility in Surrey, British Columbia. As this is not currently a designated project under the Canadian Environmental Assessment Act, 2012, Health Canada will not be providing comments on the EIA during this 30 day public comment period. However, if Port Metro Vancouver after reviewing the public comments or further modifications to the EIA, has specific technical areas of concern they wish Health Canada to review, the department is willing to carry out that review in areas relevant to its mandate and in which it possesses specialist expertise, information or knowledge.

Health Canada is the federal department responsible for helping Canadians to maintain and improve their health. As a part of our mandate, the Department may participate in environmental assessments as a federal authority under CEAA, upon request. In this role, Health Canada would assist in the evaluation of potential human health impacts of proposed projects undergoing an assessment under CEAA, by providing the responsible authority (i.e., the department/agency responsible for decision making) with specialist or expert information or knowledge on the potential impacts of project-related exposure to contaminants in water, air, and foods.

Health Canada does not assess the significance of the human health effects related to a project, but rather focuses its comments on the accuracy, scientific validity and completeness concerning these effects. Consistent with its responsibilities under CEAA, the Department does not grant

any approvals or make any regulatory decisions with respect to proposals that undergo an environmental assessment.

Thank you for contacting Health Canada and please do not hesitate to contact me should you have any further questions.

Nicole Cote

Manager for Environmental Assessment and Contaminated Sites Division //

Gestionnaire de la division de l'évaluation environnementale et des sites contaminés

Environmental Health Bureau / Le Bureau de la santé environnementale

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November 12, 2013

File: CP-02-02-COAL

Mr. Darrell Desjardin, Director, Environmental Programs
Port Metro Vancouver
100 The Pointe, 999 Canada Place
Vancouver, BC V6C 3T4

Dear Mr. Desjardin:

Re: Fraser Surrey Docks Direct Transfer Coal Facility: EIA Report and Appendices

Thank you for the opportunity to comment on the draft environmental impact assessment (EIA) prepared for the Fraser Surrey Docks direct transfer coal facility.

With this letter, we are providing initial comments on the report, prior to its release to the general public. We anticipate that we will be providing more detailed technical comments on the assessment, during the 30 day public comment period.

As you may be aware, at its meeting of June 14, 2013 the Metro Vancouver Board adopted a resolution to express its opposition to the shipment of coal from the Fraser River Estuary, other than from the existing coal facilities at Roberts Bank, on the basis of concerns related to air quality, climate change, health and other impacts. These impacts are associated with both engine exhaust and coal dust emissions from multiple points in the chain as coal is transported into facilities at Port Metro Vancouver, stored and handled in the region, and exported. The Metro Vancouver Board also supports the inclusion of health impact assessment in the review and decision-making processes for expanded and new coal handling infrastructure within the region.

We appreciate that Port Metro Vancouver has responded to the concerns expressed by Metro Vancouver, along with other stakeholders, and has required Fraser Surrey Docks to conduct the subject environmental impact assessment.

General Comments on Scope and Process

As stated at our inter-agency meeting on October 25th, Metro Vancouver would have preferred to have an opportunity to comment on a draft scope of work for the EIA, including the proposed emission estimation methods, modeling plan, and cumulative effects assessment. As this was not the case, there is certainly the possibility that Metro Vancouver or other agencies will request revisions to certain aspects of the EIA after having the chance to conduct a detailed review.

It is noted that much of the current air quality assessment is based on work done previously by consultants on behalf of the proponent. In some cases the repackaging of earlier work leads to a lack of clarity on what remains from the earlier work, and what has been revised in light of new requirements and assumptions such as the re-application of topping agent to rail cars, the use of dust suppression methods on barges, and the deletion of the emergency stockpile at the FSD site. Three examples follow.

The full scale capacity of the FSD terminal does not appear to have been modelled and/or presented in this assessment. The assessment report mentions throughput of 2 million MT (Year 1) and 4 million MT (Year 2-5); it appears that only one of these scenarios has been presented in the report, but the report does not state which scenario it is. Previous modelling performed by Levelton in 2012 presented results for three scenarios corresponding to 2 million MT (Year 1), 4 million MT (Year 2-5) and full capacity 8 million MT (Year 6+). The 8 million MT scenario showed exceedances of the NO₂ annual objective and PM_{2.5} likely exceeding the 24h objective.

Initially, FSD proposed emergency stockpiles, albeit for limited use. It is our understanding that Port Metro Vancouver has requested that on-site stockpiles be removed from the proposal. However, the EIA still contains references to stockpiling coal; two examples are in Section 7.3.1.4 (p. 143), which describes limited stockpiling, and Section 10.2.3.1 (p. 165), which describes how coal will remain in stockpiles until wind conditions are conducive to transfer. The latter mitigation method requires clarification. Does this mean that the rail cars or barges simply act as temporary storage piles during wind events, rather than the use of stockpiles on land? In earlier reports, it was stated that barges would not operate when winds exceeded 40 km/hour, and while that condition remains in this report, it is not clear whether the use of dust suppression agents on barges changes this requirement.

In Appendix VIII, the Draft Air Quality Management Plan appears outdated as it includes references to 2012 modeling work rather than the updated 2013 modeling.

Air Quality

Based on our initial read of the EIA document, we have a number of preliminary comments related to the air quality assessment.

One of the key issues we identify is the omission of sources associated with railcar unloading, storage and ship loading of agricultural products. Given that agricultural products are currently being handled at FSD, if simultaneous storage and handling of coal and agricultural commodities is contemplated, this should be reflected in the modeling. Another issue is the extension of the FSD facility fence line, compared to the earlier modeling work. The fence line has now been extended over a part of the Fraser River where exceedances of the annual objective for NO₂ were predicted in the 2012 version of the dispersion modelling report and it is not clear that public access is restricted in this area. Finally, our staff have identified some discrepancies in the control efficiencies applied in the emission estimates for railcar unloading and barge loading.

We have also identified some initial concerns with how transport emissions are dealt with in the assessment. Given the sensitivity of the public to the transportation-related emissions from this project, limiting the modeling to a "screening" approach on the four locations along the rail tracks, and 2 locations along the barge route, is questionable. Given the fixed nature of both routes, it seems that modeling the entire length of the routes would be achievable, although it might be time-consuming. The domain limits would reasonably be the US border on the rail line. The barge route may be more complex, but should be modeled to, at minimum, a few kilometres offshore. We believe also that public concerns will be raised with the lack of modeling for the Texada Island site transportation or site emissions impacts.

As noted by Metro Vancouver at the inter-agency meeting on October 25th, significant concerns have been raised previously about fugitive coal dust and engine exhaust emissions from rail cars and barges in transit. The report would benefit from more detailed description of the emission rates estimated for these sources,

and the assumptions about control efficiencies attributed to the dust suppression methods employed. The modeling results should be compared to near-track ambient concentration measurements cited elsewhere in the analysis, and critically, to more recent analyses. We feel it will be problematic to rely on a study that is more than 25 years old (the 1986 ESL study on coal dust at Agassiz, BC). Air quality instruments have advanced since that time, including the size fractions measured.

Unlike the work for the FSD site itself, the screening analysis of the transportation corridor did not include identification of potential sensitive receptors, or any discussion of the proximity of actual receptors to the transportation corridors. It is our understanding that some residences are very close to the rail tracks in particular.

More detailed comments on the air quality assessment are provided as an attachment to this letter.

Health

The health impacts that have been assessed in the report are largely related to air quality and do not appear to address the full scope of work suggested by Vancouver Coastal Health Authority and Fraser Health Authority. We will defer to the expertise of the health authorities and expect that they will comment further on this issue.

As with other parts of the study, the “health impact analysis” for the transportation corridors is threshold-based, focusing on air quality objectives. There is no attempt to quantify population health impacts for transportation emissions. Concentration increments due to the project may be small, but that does not preclude the consultant from estimating population health impacts using standard mortality and morbidity risk coefficients for pollutants like PM_{2.5} and NO_x.

Finally, as noted at the inter-agency meeting, diesel particulate matter has been identified as a confirmed human carcinogen by the World Health Organization and IARC. As such, it has been identified as a priority air contaminant for reductions in the Metro Vancouver region, and we would request an assessment of health risks associated with diesel particulate matter emissions from this project – attributable to rail transport, barge transport, and equipment on the FSD site.

Public Consultation

We feel that the description of the public consultation process undertaken by the proponent does not mention some of the key issues raised outside of the information campaign and events hosted by FSD. In particular, the feedback from the two Health Authorities, Metro Vancouver and several municipalities are not described. Moreover, the changes made to the project proposal in response to consultation feedback should be documented. Lastly, while the report documents six key issues that were raised in consultation, it does not list public health concerns or climate change impacts, which arguably emerged as two of the key issues during the process.

Metro Vancouver’s Regulatory Authority

Although the section on regulatory context notes that FSD is working with Metro Vancouver to obtain an air emissions permit, it states that the Metro Vancouver permit is not a requirement for the construction or operation of the facility. We note that the project permit issued by Port Metro Vancouver to Neptune Terminals does specify the need for an air emissions permit, and the requirement to comply with such a permit.

The section also notes that local governments do not have any triggers or requirements to conduct an environmental review of the project. It should be noted that Metro Vancouver's District Director, in issuing a permit, will include conditions that are advisable for the protection of the environment. In making that determination, he/she will consider all relevant information. We are not able to say at this time whether the EIA conducted for FSD, as required by Port Metro Vancouver, will be sufficient for Metro Vancouver's permitting process.

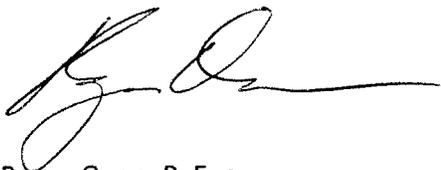
Closing

Overall we thank Port Metro Vancouver for requiring the proponent to conduct this assessment, and its responsiveness to some of the concerns which have been raised by Metro Vancouver regarding the proposed direct coal transfer facility and associated impacts, and the process for project referrals between ourselves and the Port, health authorities and others.

As noted above, the comments contained herein should be considered preliminary in nature, due to the brief review period, and focused primarily on air quality and health. Over the next 30 days we will conduct a more thorough review of the materials provided, including an examination of the impacts on water resources, fish and fish habitat, vegetation and wildlife, and ecological health.

Please do not hesitate to contact the undersigned, at 604-436-6770 or roger.quan@metrovancover.org if you require clarification on any of our comments.

Yours truly,



Roger Quan, P. Eng.
Director, Air Quality and Environment
Planning, Policy and Environment Department

RQ/II

Attachment: Preliminary Technical Comments

Attachment: Preliminary Technical Comments
(as of November 12, 2013)

Appendix VIII (Draft Air Quality Assessment and Draft Air Quality Management Plan)

- On page 1 it is stated that a detailed modelling plan was developed through consultation with Metro Vancouver. Levelton essentially followed that plan with one notable exception: the dozen or so emission sources associated with handling agricultural sources were not included in the modelling (p. 8 of modelling plan). The agricultural products can include soy, canola, malt, peas, or lentils. Metro Vancouver staff observations to date have been that there are large quantities of fugitive dust emitted from these sources, and in fact complaints have been received regarding dust impacts. For the EIA, the key question is whether it is possible that railcar unloading or ship loading of agricultural products could occur at the same time as railcar unloading and ship loading of coal. If the answer is yes then it is likely that an additional scenario that includes the agricultural handling sources is required. The background concentrations based on MV station data will not be representative of the agricultural handling sources in the near field.
- On page 2, Section 2.1.4.1 it is stated that “FSD will use recycled drainage wastewater...for dust suppression on site to wet down as required the barges, coal conveyor transfer points, the receiving building pits...” The use of “as required” suggests that wetting will not be continuous and yet control factors that were used in the emission estimation are for continuous application. Clarification is required.
- It is unclear whether 24-hour PM_{2.5} and PM₁₀ predictions are daily averages or rolling averages. Clarification is needed.
- Page 14, Section 5.4.1 Railcar Unloading:
 - a. The hourly, daily and annual wind speeds that were used in the emission estimates should be provided.
 - b. It appears that an incorrect control efficiency was used for railcar unloading. Based on Table 4 of the reference provided, the control efficiency for wet suppression with chemicals for unloading railcars is 80% not 90%. The combined control efficiency is 94% not 97%.
- Page 16, Section 5.4.2 Material Transfer Points: a revised Project Process Flow diagram with transfer point numbers should be provided, to match those used in Table 5-2 as well as with mass of material handled.
- Page 17, Section 5.4.3: similar to the comment above, it appears that an incorrect control efficiency was used for barge loading. Based on Table 4 of the reference provided, the control efficiency for wet suppression with chemicals for railcar/barge loading is 80% not 90%.
- The fenceline, inside which there are no model receptors, has been extended over the water and over the PARY (see Figure 6-2). In the October 30, 2012 dispersion modelling report, exceedances of the annual objective for NO₂ were predicted in the area over the water that has now been included in the fenceline (see Figure 7-4 of the 2012 report). The justification for this

change in the fence line is provided on Page 27, Section 6.1: "Both of these areas have either limited or no public access." However, it is not clear how access to this water area can be limited. As a result of this change, the maximum predicted annual average NO₂ concentration in this version of the report is equal to the objective (40 ug/m³).

- Table 6-2 needs a column showing the assumed area for each source.
- The data used to characterize the background air quality of FSD "were chosen based on their proximity to the FSD's facility". One station (T18-Burnaby South) was used to represent PM₁₀ and PM_{2.5}. The Burnaby South station is located in a predominantly residential neighbourhood removed from adjacent industrial activities. The FSD location is in a relatively industrial setting with other PM sources nearby (e.g., Interfor Sawmill to the south, Annacis Island to the east). Other activities performed at FSD that generate PM have not been included in the modelling nor are they reflected in the Burnaby South background used. This will likely result in an underestimation of the cumulative effects of PM.
- In addition, some significant activities/sources outside the FSD (e.g. other marine activities in the Fraser River, and vehicle traffic on South Fraser Perimeter Road or River Road, which is only a few hundred meters away from FSD) have also been excluded. Therefore the representativeness of background air quality used in the study is questionable and will likely result in an underestimation of cumulative effects of PM, NO_x and SO_x.
- Justification should be provided as to why a background value was not added to the one-hour maximum NO₂ predictions.
- Since the proponent has predicted that NO₂ will equal the annual objective, the proposal to take a few spot samples using a handheld NO₂ meter does not seem adequate. It would be more appropriate to deploy a continuous NO₂ monitor that has the capability of measuring annual averages as well as shorter-term averages.
- Justification should be provided as to why total particulate matter (TPM) would be monitored rather than contaminants such as PM_{2.5} and/or PM₁₀ that have ambient air quality objectives and potential health effects.
- Based on health impact studies, the short-term effects of SO₂ has been recognized by WHO and recommended a guideline for 10 minute average SO₂ concentrations. It doesn't appear that the short-term effects (i.e. 10 minute) for SO₂ were modeled as part of this study.
- There appears to be no attempt provided in the Air Quality Management Plan (AQMP) to differentiate between coal related emissions and other non-FSD sources. It would be recommended for the AQMP to incorporate some type of quantification of coal dust impacts at the nearest resident location through a filter based collection of PM coupled with a detailed lab analysis of the filters. This type of analysis was done by the Corporation of Delta during the summer of 2013, and Metro Vancouver is proposing a similar approach for monitoring along Low Level Road in the City of North Vancouver.

From: [Rosenboom, Remko FLNR:EX](#)
To: [Brown, Carrie](#)
Cc: [Barrett, Scott FLNR:EX](#); [Kreye, Ross A FLNR:EX](#)
Subject: RE: Comments deadline approaching -- EIA report and appendices pertaining to Fraser Surrey Docks
Date: November-12-13 3:17:31 PM
Attachments: [image001.png](#)

Hi Carrie,

I only just received the EIA and did a quick scan true the documents and looked for references to the *Water Act*.

I noticed the Water Act is not mentioned at all in the EAI. This surprised me because it is clear that there are works proposed in and on the banks of the river and as the Fraser is considered to be a stream under the *Water Act*, an Approval for a Changes in and about a Stream under the *Water Act* is required for such a project. The involvement of DFO in this project do not eliminate the need for such an approval.

Our review of an application to for such an Section 9 Approval would include topics like the impacts on the aquatic and riparian ecosystems (and their proposed mitigation), holder of Water licences in the area, sediment and erosion control and impacts on First Nation interests.

Please let me know if you would like to discuss this in more detail.

Regards,
Remko Rosenboom

Section Head Water Allocations, South Coast Region
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Our Vision: Economic prosperity and environmental sustainability

From: Patterson, Michelle [<mailto:Michelle.Patterson@portmetrovancoover.com>] **On Behalf Of** Desjardin, Darrell
Sent: Wednesday, November 6, 2013 3:21 PM
To: Chatwell, Ian; Hall, Karen; XT:HLTH Lu, James; Berardinucci, Julia F FLNR:EX; roger.quan@metrovancoover.org; XT:Dr.Paul Van Buynder HLTH:IN; Nutton, Byron; 'Laura.Maclean@ec.gc.ca'; 'Carl.Alleyne@hc-sc.gc.ca'
Cc: Brown, Carrie
Subject: Comments deadline approaching -- EIA report and appendices pertaining to Fraser Surrey Docks

Good afternoon,

Just a reminder that comments on the Fraser Surrey Docks draft report "Environmental Impact Assessment for the Direct Transfer Coal Facility" are due by 4:00 pm on Tuesday, November 12,

2013. Please submit your comments on the draft EIA to carrie.brown@portmetrovanancouver.com. If you are having difficulty accessing the document via the FTP site, or if you have any questions, please feel free to contact me.

A final EIA report will be posted to Port Metro Vancouver's website later in November for a 30-day public comment period. You are also invited to provide comments during that comment period.

Regards,

DARRELL DESJARDIN, B.Sc.
Director, Environmental Programs



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From: Patterson, Michelle **On Behalf Of** Desjardin, Darrell
Sent: Monday, October 28, 2013 4:10 PM
To: 'ian.chatwell@tc.gc.ca'; 'Hall, Karen'; 'James.Lu@vch.ca'; 'Berardinucci, Julia F FLNR:EX'; 'Roger Quan'; 'paul.vanbuynder@fraserhealth.ca'; 'Byron.Nutton@dfo-mpo.gc.ca'; 'Laura.Maclean@ec.gc.ca'; 'Carl.Alleyne@hc-sc.gc.ca'
Subject: FTP access to EIA report and appendices re: Fraser Surrey Docks

Good afternoon,

At the FTP link below, please find the October 24th draft of the Fraser Surrey Docks EIA and appendices for download. You are invited to send your comments on this draft by 400pm November 12th to carrie.brown@portmetrovanancouver.com. Comments will be provided to FSD before the final version is provided for public and further agency comment, starting on November 15th or 18th.

Using your Internet browser, access the ftp site below:

[ftp.vfpa.ca](ftp://vfpa.ca)

Login: cbrown

Password: C8Ut9C3@

Please ensure you disable pop-up blockers or click Yes if asked to 'trust this site'.

Regards,

DARRELL DESJARDIN, B.Sc.
Director, Environmental Programs



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November 13, 2013

DARRELL DESJARDIN

Director, Environmental Programs
Port Metro Vancouver
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Dear Mr. Desjardin:

RE: October 24 2013 draft of the Fraser Surrey Docks EIA

We thank you for the opportunity to provide comments on the above document prepared by SNC Lavalin for Fraser Surrey Docks (FSD). We apologize for missing the agency comment deadline. To minimize delay in the review process, we will provide a copy of our comments to the proponent (FSD) directly. Due to the short turnaround time for agencies to provide response, we will provide additional comments as necessary during the public comment period.

Should it proceed as planned, this project will see the transportation of coal on a segment of the BNSF line that did not transport coal before, through urban neighborhoods that never had experience with coal as a commodity on the railway, and into a port facility (FSD) that has never handled coal. Being this is a "first" in a number of fronts, expectations are appropriately high that the proponents will exercise very careful considerations with respect to the project's impact on the health and safety of the public, as well as its environmental impact.

We were encouraged when Port Metro Vancouver indicated the requirement that Fraser Surrey Docks complete an Environmental Impact Assessment of the project that included an assessment of health impacts of the full project, not limited only to impacts from activity at FSD. After reviewing the report, we provide the following high-level feedback:

1. The SNC-Lavalin report is primarily a repackaging of work previously done by other consultants, primarily Levelton Consultants Inc., with limited additional analyses to address concerns raised by ourselves, the public and local governments.

2. Most of the conclusions in the report about potential environmental and health impacts rely upon modeling work done by Levelton i.e. “Air Quality Assessment”. We are concerned about the underlying assumptions that informed that model, which were not assessed critically by SNC-Lavalin.
3. The assessment of potential health impacts is particularly disappointing, and receives minimal attention in the document. Of note, much greater consideration is given to the potential effects of the project on plants, fish and wildlife than to people. The report does not meet even the most basic requirements of a health impact assessment. SNC-Lavalin has included a 4-page summary describing general air toxins and their known health effects, but no link to this project. The appendix includes a short letter written by a toxicologist, Dr. Leonard Ritter, with his opinion about the potential health impacts of coal dust. The letter is based on the assumption that the Levelton model is accurate, and includes only a single reference pertaining to the potential health impacts of coal dust. No discussion is included of any other potential health impacts. This single toxicologist’s opinion does not meet the standards of a health impact assessment.
4. The report does not deal with the full scope of the project, from the time coal crosses the Canadian border to its transport and loading at Texada Island.

Based on these shortfalls, this report adds little to the information we require to determine the potential health impacts of the project and does not allow us to address legitimate concerns raised by members of the public and local governments.

We would still be very willing to meet with SNC-Lavalin to identify the parameters required to do an appropriate assessment of the potential health effects of the project, and we urge Port Metro Vancouver to ask Fraser Surrey Docks to revisit this report with that recommendation.

In addition to these general comments, we provide the following specific feedback on this draft of the report. Firstly, we ask that the May 27th 2013 letter to Port Metro Vancouver from Dr. Van Buynder Chief Medical Health Officer for Fraser Health, is included as an appendix, and that those concerns outlined in the letter are addressed in the report.

Since the May letter, we understand that a number of revisions has been made to the project with the intention to at least partially address the concerns. It is with this in mind that we provide the following additional comments.

1. The Spatial , Population, and Temporal Scope of the EIA

• Spatial

The draft EIA primarily covers the FSD site and the immediate surrounding areas on land and water. While we understand the limited jurisdiction Port Metro Vancouver has and that this EIA is primarily to address Port Metro Vancouver’s requirements, it is still disappointing that the proponent (FSD) chose not to include the Canadian side of the project supply chain from the border to Texada Island in the EIA. Locations where potential health impacts could be of concern are not limited to the FSD site and its vicinity. For the health and safety of the public, the scope of this EIA should not be limited to the construction and operations that will occur at the FSD site. As Dr. Van Buynder pointed out in his May 27th letter, “the public are particularly intolerant of piecemeal approaches to major projects”. This EIA will not be credible to the public unless it covers the entire geographic area in which this project will operate within British Columbia.

- **Population.**

The draft EIA provided only general descriptions of the population and growth trends for Surrey and Delta. While the document correctly identified children and the elderly as two of the vulnerable populations who could be more sensitive to project impacts such as air quality degradation, the document did not provide much detail on the sizes and locations of potentially sensitive population groups along the rail corridor from White Rock to FSD. The air dispersion modeling in appendix VIII did include sensitive receptors (locations of schools, child care and hospitals) in a 20km x 20km domain. However only the FSD emissions were included in the dispersion model. Indeed the distribution of the sensitive receptors in the model suggests that vulnerable populations are located all along the rail corridor and that modeling emissions from FSD only is not adequate.

As the draft EIA showed, the populations of Surrey and Delta are increasing. Yet the document did not include information on how these population increases may affect the size of the vulnerable population over the proposed life time of the project. Nor did the document include information on other important characteristics of the population such as socioeconomic status. The narrow geographic scope also meant the exclusion of populations near the proposed operations at Texada Island in the assessment. Indeed while the draft EIA rightly included extensive documentation and analyses of sensitive plants, and non-human animal species that may potentially be impacted by the project, the same effort was not given to describing the human population that may potentially be impacted.

Information on potentially vulnerable populations impacted by the project should be included and could be accessed through government sources. This information is essential to determine population health risk based on those exposed.

- **Temporal boundary**

The draft EIA states that this project has a life span of six years. At the same time however, the draft EIA also states that the FSD facility improvements will not be decommissioned after completion of the project. In addition, the planned expansion work at the Port Authority Rail Yard (PARY) is for accommodating two unit trains at a time. The draft EIA states: "the current capacity at the PARY is one unit coal train at a time, based on its capability to receive, stage, and depart trains." Even at the proposed maximum capacity for this project, there will be only one unit train a day arriving at FSD. The current project should not require tracks to accommodate two unit trains at a time. It is therefore unclear whether continuation and further expansion of the project beyond six years are being contemplated, or whether the capacity for one additional unit train is intended as temporary coal storage in lieu of the original emergency coal storage stockpile that was deleted from the revised proposal. Clarification of intent is critical. It is not appropriate for example to be limiting the EIA to consider only six years of operation and at the stated volume if the ultimate goal is to expand beyond six years and or current volume.

2. Air Quality

- **Coal dust**

We acknowledge that a number of positive changes have been proposed with respect to coal dust mitigation: elimination of the emergency storage stockpile, additional use of sealants during transit on the incoming coal trains, and the addition of sealant during transfer and

loading onto the barges. The proposed dust mitigation strategies will now rely much on the use of sealants, and load profiling. Neither data nor references are given in the draft EIA to support the efficiency claims for these strategies. They could be as efficient as claimed, but as written, it would appear the authors of the draft EIA simply took the values provided by the project proponent / product manufacturer without any effort to seek independent validation.

With respect to the health effects from coal dust, the WHO International Agency for Research on Cancer (IARC) recently announced the inclusion of outdoor air pollution in general as a Group 1 carcinogen. In making its decision IARC included both anthropogenic and natural sources of air pollution. (<http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045%2813%2970487-X/fulltext>, http://www.iarc.fr/en/media-centre/pr/2013/pdfs/pr221_E.pdf) The Health Effects Institute also recently published its review on particulate (PM) air pollution. While the review found stronger evidence for the health effects from certain types of particulates, “the review panel concluded, however, that the studies do not provide compelling evidence that any specific source, component, or size class of PM may be excluded as a possible contributor to PM toxicity.” (<http://www.healtheffects.org/Pubs/NPACT-ExecutiveSummary.pdf>) In other words, coal dust will contribute to the total toxicity from outdoor air pollution when it is present. Dr Ritter’s comments with respect to the 1997 IARC monograph on coal should be considered in light of these recent scientific developments.

We note in the draft EIA mention of the use of a ten fold (10 X) factor for transforming occupational health limits to sensitive populations such as children and the elderly (pages 121, 124). The document goes on to intimate that this is a common and accepted practice. We request the document author to supply references from published literature to support this assumption specifically for coal dust.

A brief summary on the type and composition of the coal to be shipped is provided in the draft EIA. The description, unfortunately, does not contain information regarding mercury, lead, arsenic, and other possible contaminants as requested by Dr. Van Buynder in his May 27 letter. This could be important information for assessing the potential impacts on food grown by residents and farms along the railway track leading to the FSD site

Much was mentioned in the draft EIA and in the appendices on the 1986 ESL study on coal dust at Agassiz BC. This study is more than 25 years old. Air quality instrumentation and measurement protocols have advanced considerably since. It is unknown whether the older instruments and measurement protocols in 1986 would have under or over estimated the actual levels. More recent data do exist and would have been helpful to include them. In addition, averaging the particulate concentration over 24 hours will mask any shorter term concentration levels that may have short term health effects.

The revised plan has deleted the emergency coal storage stockpile. The revised plan however considers the possibility of loaded barges staying at the dockside in the event of high winds (> 40 km/hr) as a way of reducing the risk of blown dust during passage to Texada Island. In effect, during these weather events these barges would be providing a function similar to the original emergency stockpile. Although the dispersion modeling included loaded barges at dockside as a source of emission, it is unclear whether the modeling considered severe wind events when the barges may stay at dockside much longer than during normal operations. It would be important to determine the possible frequency of such events and to

model the impacts to air quality when the loaded barges stay at dockside for extended periods of time.

- **Diesel emissions**

The assessment of health impacts in the report focuses primarily on coal dust, with little consideration of the increase in diesel emissions from trains, barges, trucks and idling vehicles at railway crossings. Given that diesel emissions are associated with many acute and chronic health impacts, and are a known carcinogen, this is a significant deficiency of the report. We find this surprising because Levelton, in 2007, completed the “Air Toxics Emissions Inventory and Health Risk Assessment – Summary Report ” on behalf of Metro Vancouver.

(http://www.metrovancouver.org/about/publications/Publications/Air_Toxics_Emission.pdf)

This report estimated about 350 cancers per one million population over a 70 year lifespan from diesel emissions in the Metro Vancouver region. Levelton could use this model to estimate the cumulative effects from the added diesel emissions from this proposed project for the potentially affected populations.

- **Dispersion modeling**

We defer the detailed review of the dispersion model to Metro Vancouver staff. Much of the EIA conclusions on the health effects from air emissions from this project are dependent on the validity of the dispersion modeling, and the interpretation of the intent of the Ambient Air Quality Objectives (AAQO). The BC Government has this to say regarding the use of the AAQO: “As even low levels of air pollution can affect some individuals, air quality objectives should not be viewed as levels we can “pollute up to,” but levels to stay well below.”

(<http://www.bcairquality.ca/regulatory/air-objectives-standards.html>) Moreover, in setting the AAQO, the BC Government considers other factors besides health evidence. The final AAQO is an integration of “information from the risk assessment with economic and technical factors as well as ethical, social, legal, ecological and achievability considerations”.

(<http://www.bcairquality.ca/reports/pdfs/ago-framework-information-sheet.pdf>) Furthermore, the AAQO is only meant as a guide for decision making.

(<http://www.bcairquality.ca/regulatory/air-objectives-standards.html>). It is therefore inappropriate for this EIA document to use the AAQO as the definitive criteria to characterize the level of health effects from the air quality predictions.

We have already mentioned above that there is a lack of information in the EIA regarding the efficiency of the dust sealants and other coal dust mitigation strategies, and therefore it is impossible for us to determine whether the emission factors used for the model are correct. We have also noted that the time and spatial domains chosen for the model will influence whether the model will be able to assess any possible short term health effects. While using the 24 hours and annual averages will allow comparison to existing air quality objectives over a wide area, they are not as useful for assessing short term local impacts. In addition, there is no known threshold below which particulate air pollution have no health effects. There are health effects even at the current air quality objectives. Concentration response functions are available to assess health effects at different levels of different air pollutants. It is much more informative to derive estimates of additional health effects directly from a validated model as opposed to simply commenting on whether the existing air quality objectives will be exceeded.

- **South Fraser Health Region 1998 Letter**

The draft EIA included a 1998 letter to the Corporation of Delta from Dr Robert Strang, then Associate Medical Health Officer, South Fraser Health Region. The letter was in response to concerns regarding dust originating from Westshore Terminals affecting the health of Delta residents – in particular Tsawwassen children. The letter presented data on respiratory illness and asthma related hospitalization and deaths, comparing different areas in the former South Fraser Health Region and elsewhere in BC. The spatial unit of analysis used was the Local Health Area (LHA), which is equivalent geographically to the local school district. The letter concluded that the information available did not point to concerns about higher levels of asthma or respiratory disease in Delta compared to other areas in the South Fraser Health Region or the province. LHA 37 is equivalent in size and geographic location as the Delta School District (SD 37). LHA 37 is a large geographic area, and includes three town centers (Tsawwassen, Ladner, and North Delta), with even the closest of them (Tsawwassen) still some distance away from the Westshore Terminals. If there were any health effects associated with dust exposure for the smaller number of people who lived closer to the coal port or along the railway tracks that served the port, the signals would have been drowned out by the health experiences of the large population centers. As well, the analysis did not adjust for socioeconomic status, smoking status or other potential confounders when comparing the different LHAs. The geographic location of Tsawwassen in relation to Westshore Terminals is also different from the geographic relationship between FSD and its neighboring residential areas. Dr. Strang provided no conclusion in his letter about whether or not populations living in close proximity to coal dust transport and handling had suffered undue health effects, nor was the analyses included appropriate to answer that question. It is not appropriate to use the letter as evidence for assessing health effects for the FSD project.

- **Air Quality Monitoring**

Dr Van Buynder in his May 27 letter emphasized the need for adequate air quality monitoring to verify the dispersion modeling results should the project proceed. It is not clear reading the draft EIA whether the entire monitoring proposal in Levelton's May 2013 draft Air Quality Management Plan is to be carried forward. Even if it does, the single air quality monitor station proposed outside of the FSD site is not adequate. Additional air quality monitoring at strategic locations on the rail corridor are needed to resolve issues including coal dust falls, train diesel emissions, and motor vehicle emissions at rail crossings given the increased wait times. Also in the earlier May 2013 draft Air Quality Management Plan barge based monitoring for particulates was proposed. Again, it is unclear in the draft EIA whether this is still the case.

3. Emergency Vehicle Access

The draft EIA suggests that the current arrangements for ensuring timely access across rail crossings for emergency vehicles are adequate. Without additional information, we remain concerned. We recommend that the proponent asks BC Ambulance Service, the Surrey and Delta Fire Departments and other appropriate first responders to review the proposal for adequacy with respect to emergency response access.

4. Recreation, Livability, Amenities

The impact of dust falls from passing coal trains on neighborhood livability is not addressed in the draft EIA. Complaints of coal dust soiling windows, covering outdoor structures have been recorded from residents living close to railway tracks in other locations such as was in Agassiz. (The Canadian Council of Ministers of the Environment. "*A Study of Fugitive Coal*

Dust Emissions In Canada". 2001) The dispersion modeling presented in the EIA is not useful for predicting dust fouling of outdoor living spaces in residential areas and in recreational amenities such as trails that run parallel to segments of the BNSF tracks. There is also no information on the increased potential for injury to the public at rail crossings. Neither baseline injury data nor possible future impacts are presented.

The EIA described some general strategies that the project will be using to mitigate noise impact. In order to ensure that these strategies will work, baseline noise measurements and ongoing noise monitoring during both the construction and operation phases of the project are needed

5. Public Engagement

Information contained in the draft EIA and its appendices do not permit an assessment on the adequacy of the public engagement process. Written public comments were summarized, but no attempt was made to map the public feedback, including feedback at public meetings, to the draft EIA so that reviewers can tell how the concerns were addressed. Importantly, there was no information with respect to actions or decisions by local government following presentations from FSD to the mayors and councils. We remind Port Metro that the Board of Directors of Metro Vancouver has called for a health impact assessment of the project, and that two Lower Mainland municipalities have recently passed motions banning coal from municipal lands. These decisions are important context that was not noted amongst the public feedback. Nor was recent correspondence from the Fraser and Vancouver Coastal Chief Medical Health Officers found in the appendices, even though a letter from an Associate Medical Health Officer written some 15 years ago was included.

A noise complaint response process for the FSD site of the project is described in the draft EIA. An air quality complaint tracking system for the FSD site is included in the May 2013 draft Air Quality Management Plan. There is a need for a coordinated complaint response system for this project that covers concerns arising from both within and without the FSD site. It is unclear whether such is being planned. The absence of coordinated and timely response to complaints will frustrate the public and potentially lead to unnecessary escalation of concerns.

In summary, we were pleased that Port Metro Vancouver requested a more comprehensive impact assessment for this direct transfer coal facility project. Unfortunately, this draft EIA fell well short of adequately addressing the human health impacts of the proposal. We, as the Medical Health Officers responsible for protecting the public health in the regions impacted by the project are being asked by the public and the local governments whether this project will have health impacts. Regrettably we are no closer to answering this question, even having reviewed the draft EIA. In our letter of September 25, 2013 we requested that health authorities be provided with an opportunity to assist in the scoping of the EIA. This offer still stands and we once again urge the project proponents (FSD and its business partners in this project) to conduct a health impact assessment that includes all of the project components from the U.S.-Canada border to Texada Island.

Health Impact Assessments are designed to minimize the negative and maximize the positive impacts of large projects. We believe it is the most appropriate and socially responsible approach for the proponents to address our concerns and those of the public.

Sincerely,



Paul Van Buynder, MBBS, MPH, FAFPHM Chief Medical Health Officer and Program Medical Director, Public Health Fraser Health Authority	Patricia Daly MD, FRCPC Chief Medical Health Officer and Vice-President, Public Health Vancouver Coastal Health
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CC: Dr. Perry Kendall, Provincial Health Officer
Roger Quan, Air Quality Policy & Management Division Manager, Metro Vancouver
Jurgen Franke, Director, Engineering and Maintenance, Fraser Surrey Docks –
contact for proponent (jurgenf@fsd.bc.ca)

Attachments:

1. May 27 2013 letter from Dr. Van Buynder to PMV
2. September 25 2013 letter from Drs. Van Buynder and Daly to PMV

December 5, 2013

DARRELL DESJARDIN

Director, Environmental Programs
Port Metro Vancouver
100 The Pointe
999 Canada Place
Vancouver, BC V6C 3T4

Dear Mr. Desjardin:

RE: Fraser Surrey Docks EIA dated November 18

Further to our letter dated November 13, 2013, we submit the following additional comments with respect to the EIA prepared by SNC-Lavalin for Fraser Surrey Docks (FSD). We wish to inform you that we will be sharing our comments with the relevant local and regional governments pursuant to section 73(3) of the BC *Public Health Act*.

Prior to further addressing the EIA, we wish to reiterate our consistent over-arching approach to the project and its assessment. It is very likely that, had FSD collaborated with the Medical Health Officers of Fraser Health and Vancouver Coastal Health and other interested parties over the scope and content of the assessment required, we would have jointly agreed on necessary mitigation strategies and the ongoing verification needed to reassure all concerned that modeling and assumptions involved predicted actual population health impacts. We are disappointed that our input was never utilized in the work.

Our earlier comments still stand: we do not have enough information to determine the extent of the potential health impact from this project. We do however have additional comments after reviewing the revised EIA dated November 18, 2013.

1. The Geographic, Population, and Temporal Scope of the EIA

We continue to be disappointed by the narrowness of the scope of the EIA. A more comprehensive EIA that addresses the issues of concern not only to Port Metro Vancouver but also to the community and local governments could have been produced. We reiterate, this EIA will not be credible to the public unless it covers the entire geographic area in which this project will operate in British Columbia.

Several places in the EIA mention Tsawwassen as a community that has experienced little air quality impact from the coal handling at Westshore Terminals, implying that a similar outcome should be expected for neighborhoods near FSD. We draw attention to the project proponent that when compared to Tsawwassen, North Delta (Census2006) has a higher proportion of immigrant population, a higher proportion of children, a lower average household income, and higher proportion of the population under age 19 living below the Census Low Income Cutoff (LICO). Therefore extrapolating data from Tsawwassen to a community with a very different mixture of potentially sensitive populations is inappropriate.

Additionally, there is a difference in the separation between Tsawwassen and the Westshore Terminals when compared to the distance between FSD and neighbourhoods close to it. These differences make direct comparisons of potential impacts of little practical value, and are additional reasons to undertake a complete Health Impact Assessment.

There remains a lack of clarity regarding the planned life span for the project. The application before Port Metro Vancouver (PMV) is for a project that will run its course in 6 years. Yet the EIA states clearly that there is no intention of decommissioning the structures at FSD after 6 years. Furthermore, the rail yard improvements as planned will result in double the capacity needed for this project even when it is fully operational. While any additional coal volume will require a new application to PMV, we believe such incremental scope creep, if it is the intention, will add unnecessary challenges to the determination of the total impact of the project – both in the case of a volume expansion between year 1 and 6, as well as having the operation run beyond the stated six years.

2. Air Quality

• Coal dust

The recently completed coal dust fall monitoring by the Corporation of Delta was referenced in the revised EIA (page) as further evidence to imply that coal dust will unlikely to be of concern from the FSD project (page 132). No mention was made in the EIA that four of the five monitoring sites in the study, where little coal dust was detected, were located in Tsawwassen at distances between 4.5 km and 5.5 km away from the Westshore Terminals facility. These sites provide no data meaningful to those living closer to railways transporting coal or coal handling facilities. The fifth monitoring site, 15 meters from the railway and at a location north of Boundary Bay Airport, however, found a dust level that was above both the residential and non-residential BC Air Quality guidelines for dust fall. As a comparison, the closest residential area to FSD is about 520 meters away (page 103). Moreover, there are residences within 100 meters of the track as the railway passes through North Delta neighborhoods. The result from the track side monitoring site is therefore far more informative with respect to the FSD project. The conclusion of the EIA regarding the Corporation of Delta's study in relation to the FSD project is therefore incorrect. We support the Corporation of Delta's recommendation to gather more data including track side locations in North Delta, should the FSD project be approved.

In response to questions about the evidence supporting the stated effectiveness of chemical topper agents in reducing coal dust, which was included in modeling work upon which conclusions were drawn by consultants, the EIA includes a statement from retired BNSF assistant Vice President W. VanHook (Appendix XIV). It is problematic in several respects to use this statement to assess the coal dust suppression impact of topper agents, the primary mitigation strategy proposed for the FSD project:

- The statement is the public version of the verified statement given by Mr. VanHook before the US Surface Transportation Board. The statement contains a number of blank spaces, presumably due to the need to protect proprietary information, that include key data on the test results of effectiveness of the agents. As a result, however, it is not possible to independently review the BNSF data that underpins the efficacy claims for the selected chemical topper agents for dust control.
- The proceedings to determine the reasonableness of the BNSF coal dust mitigation tariff provisions are ongoing before the US Surface Transportation Board (Docket FD 35557 at <http://www.stb.dot.gov/stb/index.html>). Final decision has yet to be posted, as of December 5, 2013. Until the final decision is given by this Board, it is not clear how BNSF will be able to assure consistent application of the chemical topping agents by coal producers and shippers.
- The main BNSF objective for dust mitigation is the prevention of derailment due to dust fouling of rail road ballast. Without the BNSF data being available publicly, it is not clear whether the dust fractions of interest for assessing ballast fouling are the same as the dust fractions of interest for assessing human health impact.
- The EIA indicates that a second application of the chemical dust suppressant is proposed approximately at the mid point of the journey from mine to dockside. Given the current dispute before the US Surface Transportation Board, it is necessary to have confirmation on the feasibility of this second application in term of cost and who will pay, since cost appears to be a main driver to the current dispute.

A letter from General Electric, the manufacturer of the dust suppressants chosen for use during coal transfer and barge loading by FSD, is included in Appendix II. Again the letter does not include enough information for an independent assessment of the claimed dust mitigation efficacy.

The revised EIA continues to treat coal dust as something that will occur in complete isolation from other particulate air pollutants. When present, coal dust is part of the mixture of particulates, and contributes to the total toxicity from outdoor particulate air pollution. As mentioned in our earlier submitted comments, the WHO International Agency for Research on Cancer (IARC) recently announced the inclusion of outdoor air pollution in general as a Group 1 carcinogen. In making its decision IARC included both anthropogenic and natural sources of air pollution (doi:10.1016/S1470-2045(13)70487-X, http://www.iarc.fr/en/media-centre/pr/2013/pdfs/pr221_E.pdf). The Health Effects Institute also recently published its review on particulate (PM) air pollution. While the review found stronger evidence for the health effects from certain types of particulates, "...the review panel concluded, however, that the studies do not provide compelling evidence that any specific source, component, or size class of PM may be excluded as a possible contributor to PM toxicity." (<http://www.healtheffects.org/Pubs/NPACT-ExecutiveSummary.pdf>)

We again note there is no reference given for the rationale for the EIA to use a ten fold (10X) factor for transforming occupational health limits for coal dust to sensitive populations such as children and the elderly (page 130). We disagree that the ten fold factor is a commonly accepted practice. We submit that there is a range in the factors applied and the choice is substance dependent. Therefore a reference from the published literature for coal dust is required to support this assumption.

- **Dispersion modeling**

We remain concerned with the air dispersion modeling scope and the appropriateness of the interpretation applied to the modeling results. Specifically we note the following:

- The EIA appears to suggest that because the current background air quality is so good in the neighborhoods near FSD that a small degradation of the air quality from the project is acceptable. Maintaining and improving health is the primary objective for the BC Provincial Air Quality Objectives (<http://www.bcairquality.ca/reports/pdfs/aqo-framework-information-sheet.pdf>). The AAQO are not levels for projects to "pollute up to".
- The health impact from degradation in air quality – however small or large – depends on the size of the vulnerable population exposed. Concentration response functions are available to estimate health impacts from predicted pollutant increments, including but not limited to mortality, as well as a variety of health care utilization indicators. Given the size of the population in the neighborhoods near FSD, health impacts from the predicted air quality changes should be estimated.
- We disagree that the cursory and very selective screening level modeling along the BNSF railroad from the border to FSD is sufficient to rule out the potential for health impacts from the coal train traffic. As a start, the screening model used emission factors from the modeling work done for the FSD site. Train speed affects dust release. The speed of the train at the FSD rail yard will be quite different from the speed of the train en route to FSD. In addition, the screening model only provided estimates for annual and 24 hour concentrations for particulates. While there currently are no air quality objectives for particulates for time periods less than 24 hours, it does not mean there may not be health impacts from exposure to particulates of durations shorter than 24 hours. There is no known threshold below which particulate air pollution have no health effects. We request a complete modeling of the exposure along the rail corridor from the border to FSD, and along the barge transport route and coal handling facilities at Texada Island.

- **Diesel particulates**

The revised EIA includes a discussion on the potential for the diesel particulate emissions from this project to impact health. Comparison is made between the US EPA reference concentration (RfC) for diesel particulates and the predicted maximum annual PM_{2.5} at the nearest residence to FSD. The EIA concludes that even if the entire predicted PM_{2.5} (4.1 ug /M³) is from diesel engine emissions, it is still below the US EPA RfC of 5 ug /M³, and therefore no health impact is expected from the diesel emissions from the project. Regarding the RfC, the US EPA states: "*In general, the RfC is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily inhalation exposure of the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.*" (<http://www.epa.gov/iris/subst/0642.htm>). Given that the uncertainty can span an order of magnitude, the difference between 5ug/M³ and 4.1ug/M³ is moot. It is also the incremental contribution from the FSD project to the overall diesel particulate concentration that is of more interest. As well, the EPA acknowledges that the diesel particulate RfC is for assessing long term chronic exposures only, and is not meant for assessing short

term acute exposures. Again, we note that diesel particulates when present contribute to the overall health effects from particulate pollution in general.

3. Emergency Vehicle Access

We continue to recommend that the proponent asks BC Ambulance Service, the Surrey and Delta Fire Departments and other appropriate first responders to review the proposal for adequacy with respect to emergency response access.

4. Monitoring Post Permit Approval

We continue to recommend more comprehensive air quality monitoring should this application be approved. As mentioned above, we support the Corporation of Delta's intention to collect baseline track side coal dust data in North Delta. In addition we believe air monitoring stations at strategic locations along the rail corridor are required. The selection of monitoring locations must include participation from Metro Vancouver, the local governments and residents.

In summary, the revised EIA is not substantially different from the October 24, 2013 draft version we reviewed earlier. The EIA continues to lack clarity and depth. It still does not provide enough information for us to properly assess whether the activities associated with this project will have health impacts and if so to what degree. The proponent could provide additional information based on comments from us and others. However, given that the major deficiency of the EIA is its scope, it is unlikely the EIA can be substantially improved further without the proponent at least involving Metro Vancouver, the local governments and the Medical Health Officers to establish the appropriate scope. We continue to offer our assistance in this regard. Moreover, we again respectfully submit that it is the most appropriate and socially responsible approach for the proponents to address the health concerns through a well scoped and carried out Health Impact Assessment.

Sincerely,



Paul Van Buynder, MBBS, MPH, FAFPHM Chief Medical Health Officer and Program Medical Director, Public Health Fraser Health Authority	Patricia Daly MD, FRCPC Chief Medical Health Officer and Vice-President, Public Health Vancouver Coastal Health
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CC Dr. Perry Kendall, Provincial Health Officer

Mayors and Councils,
City of New Westminster
City of Surrey
City of White Rock
Corporation of Delta
City of Richmond
City of Vancouver

Board Chairs and Directors,
Metro Vancouver
Powell River Regional District

Roger Quan, Air Quality Policy & Management Division Manager, Metro Vancouver