

FACULTY OF HEALTH SCIENCES

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RE: Fraser Surrey Docks (FSD) Application to Amend Permit No. 2012 -072

Thank you for the opportunity to comment on the Fraser Surrey Docks (FSD) Application to Amend Permit No. 2012 -072 as part of the second round of public consultation. I am a physician-scientist with a clinical and research interest in chemically induced diseases of the lung and the health impacts of climate change. My practice in occupational and environmental medicine is at Vancouver General Hospital.

FDH has done very little to address health concerns raised by myself, Dr. Carlsten, both medical health officers of the region (Fraser and Vancouver Coastal) and others in earlier examinations of the FSD expansion plans for the coal facility in 2013 (see my letter regarding the SNC-Lavalin EIA on Dec. 3, 2013). Specifically the request for a comprehensive human health risk assessment remains unfulfilled. Now with a proposal for an even greater volume of U.S. low-quality coal through the port with Panamax ships anchoring directly across from the city of New Westminster this deficiency becomes ever more urgent.

In their scathing evaluation of the Oct. 24, 2013 draft of this EIA, the Chief Medical Health Officers of Vancouver Coastal and Fraser Health Authorities note that “the report does not meet even the most basic requirements if a health impact assessment.” No substantial improvements have occurred since that time. The geographic scope is still limited such that from a population public health standpoint, the population at risk remains more vulnerable than those workers experiencing exposures inside the fence where the impact assessment focuses.

The most significant problem with this amendment remains the fact that the most harmful health impact that the Port has conveniently left out of the scope are the **health impacts of climate change**. Burning coal, particularly low-quality coal like the Powder River product is a major source of harmful greenhouse gases (GHGs). In the introduction the Port immediately absolves themselves of any responsibility for this important health impact. That is untenable for a project of this scale. The UN’s International Panel on Climate Change was quite clear in the synthesis report from its Fifth Assessment that no new large fossil fuel infrastructure should be built. A port expansion for transporting the worst

fossil fuel still being used certainly qualifies as infrastructure that threatens human and planetary health. It's now an ethical imperative to turn back from this abyss. The Port prohibits many harmful products from passing through. They don't transport opium or other illegal drugs, munitions or radioactive materials. The U.S. EPA has determined that greenhouse gases are harmful to health. Coal fired power plants are a major source. Alternative energy sources are available.

There is an irony in this request to expand FSD operations to begin exporting coal stemming from the relationship between the increase in GHGs - climate change and extreme weather events. These events are increasing as the globe warms and are likely to increasingly disrupt river traffic of ships being stuck in port within a major population center running engines for days to maintain power. The low-quality bunker fuel used by these ships is highly polluting and a threat to local residents. We already have an incinerator, cement plants and major vehicular traffic stretching clean air resources. More forest fires are also predicted in our future. We should not be adding pollution sources to our population centres. Any comprehensive human health risk assessment should consider the 'worst-case' scenarios which include weather patterns of stagnant air along with high temperatures that is particularly harmful to the youngest and oldest members of society. Again, these conditions are predicted to occur more frequently and with greater severity under climate change.

It is noted in the 2013 EIA for the harmful pollutants PM10 and NO2 "predicted exceedences" are expected. In an already polluted airshed, in a heavily populated area we cannot accommodate additional sources of pollution. There is no mention of the additive effects of these exceedences with the additional truck traffic and the new adjacent South Fraser Perimeter Highway for example. Interestingly, the exceedences are expected "at the fence-line", but as has been noted, pollutants don't stop at fences. Coupled with the wholly inadequate dispersion modeling and the lack of a threshold for at least PM effects, these emissions deserve much greater scrutiny.

Questions remain about the heavy use of "body and topping agents" used to try to keep coal dust from being blown off of the train cars which can't be covered because the coal would spontaneously combust in a covered car. I have reviewed the Material Safety Data Sheets (MSDSs) for these compounds and they include toxic poly-vinyl chloride polymers that have been implicated in asthma and allergy. As noted in the documents, exposure to these topping agents require medical treatment if the exposures are high. Some of the constituents are proprietary which is very concerning, but even what they do disclose in the MSDSs show compounds that irritate human skin, eyes and airways and in some cases cause allergic sensitization, i.e. exposures at even low levels can cause adverse health effects. We are assured that they will be heavily used and reapplied enroute to reduce dust loss during transport. However, their health impact is not addressed. What are the proprietary ingredients? A potent toxicant has effects well below the 2% by volume requirement the manufacturers are compelled to use when reporting for the MSDSs that are presented in the appendix of the EIA. What are the health impacts of these undisclosed ingredients? These previous questions remain unanswered.

The environmental consultants hired by the port continue to take the approach that health impacts can't be a big problem. The erroneous use of protective factors in the risk assessment on coal dust harm itself typifies this attitude in the EIA, "health agencies typically apply a ten-fold uncertainty factor to

account for intraspecies variability; this factor is applied to account for potential sensitive subpopulations, such as children and/or the elderly". What they normally do is apply a 10-fold safety or uncertainty factor for each of these, i.e 10 for intraspecies variability and another 10 for potential sensitive sub-populations. I can think of several reasons to apply a third factor of 10 e.g. related to the uncertainty in the exposure assessment, impacts on the population with chronic heart or lung disease, etc. Considering just these safety-factors would bring the risk numbers well within the range of risk for the "nearest residential receptor" of 1.4 µg/m³.

Finally the risks from the heavy metals found in coal are ignored in the EIA. Burning coal is probably the largest current source of mercury pollution on the planet because coal contains mercury along with several other toxic metals. Vulnerable humans in the womb and eggs and vulnerable reproductive cycles of other species are also likely to be impacted by any increase in the current burden of these toxicants. To suggest that there will be no exposure from these toxicants is unreasonable.

Coal is a 19th Century fuel. Today with this request for social license from FSD and the Port of Vancouver, we have an excellent opportunity as a community concerned about our children's future, to start making the hard choices about our energy supply. We need to leave polluting fuels behind and move on to the sustainable future they deserve. It is imperative that all the health impacts be considered by the Port including those 'outside the fence' where people live and breathe. If the true inter-generational costs in health and well-being are considered and compared with alternatives paths we can achieve the future these generations deserve and would demand if they had the power to do so. This is our time to do it for them. A comprehensive human health risk assessment as called for by many health professionals is required for further consideration of this expansion. Such an assessment should include the health impacts of this polluting product on our planet's climate as well.

Sincerely,

A handwritten signature in black ink that reads "Tim K. Takaro". The signature is written in a cursive style with a large initial 'T'.

Tim K. Takaro, MD, MPH, MS.