

# Human Health Risk Assessment Survey Results



PARKLAND

## Overview

The Parkland Burnaby Refinery (Parkland) is conducting a Human Health Risk Assessment (HHRA) with respect to its air emissions and in support of an application to renew and amend its Metro Vancouver Regional District (MVRD) air permit, set to expire on July 31, 2022. As part of the renewal process, Parkland has committed to investing in new technologies and infrastructure to reduce emissions. These changes must be reviewed and approved by MVRD, in its capacity as the air emissions regulator for the refinery, and the HHRA is a required part of its review process.

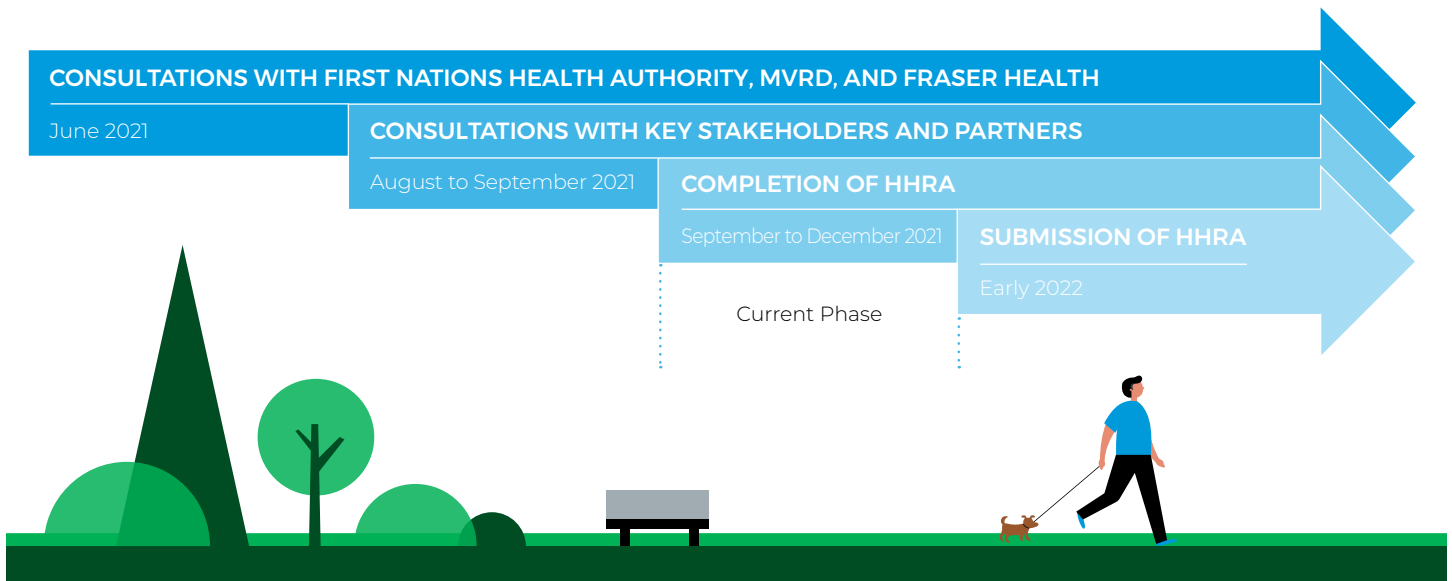
An HHRA is a scientific process that predicts the nature and likelihood of harmful health effects that may occur should people be exposed to chemicals in the environment. The key chemicals identified as potential risks to human health for this HHRA include nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>), fine particulate matter (PM<sub>2.5</sub>), benzene, and 1,3-butadiene. Parkland, through a third-party consultant (WSP Canada Inc.), has produced a draft workplan describing the proposed approach and methodology for completing the HHRA.

The draft HHRA workplan was submitted to MVRD, the Fraser Health Authority and the First Nations Health Authority for review on June 22, 2021.

Following updates to address feedback received from these agencies, Parkland invited comments and feedback on the final draft HHRA workplan from members of the Parkland Community Advisory Panel (CAP) and from members of the general public from August 15 to September 12, 2021. Parkland also consulted the following governmental and agency stakeholders during the same period:

- City of Burnaby
- Vancouver Coastal Health
- Tsleil-Waututh Nation

This report provides a summary of consultation comments received from members of the CAP and the general public. To the extent possible, these comments will be incorporated into the conduct of the HHRA. Review comments received from MVRD and other governmental and agency stakeholders will also be reflected in the HHRA report itself.



## Parkland Refinery Public Consultation Process

Comments and feedback on the draft HHRA workplan were received via email, phone, and an online survey<sup>[2]</sup>. In order to understand more about the interested parties, respondents were asked whether they resided in the City of Burnaby, whether they resided in the Capitol Hill or Burnaby Heights neighbourhoods in North Burnaby, and whether they would like to be notified of any updates on the Parkland Refinery.

Comments on the HHRA workplan were categorized into four main areas:

- The extent of the proposed study area for the HHRA
- Proposed approach to evaluate potential health risks associated with predicted emissions from the Refinery
- Other specific locations or population groups that should be included as part of the assessment
- And other/miscellaneous comments

## Results of the Public Consultation

A total of 48 comments were received via the online survey platform from 25 individual participants.

- Eight participants were residents of the Capitol Hill neighbourhood in North Burnaby
- 11 participants were residents of the Burnaby Heights neighbourhood in North Burnaby
- Two participants were residents of the Brentwood Park neighbourhood in the City of Burnaby
- Four participants live outside of these neighbourhoods.

Comments were further grouped according to a number of key themes:

- Purpose of the HHRA
- Proposed Study Area for the HHRA
- Air Quality Monitoring in the Area Around the Refinery
- Proposed Approach to Evaluate Health Risks
- Receptors of Interest
- HHRA Authorship and Review Process
- Truck Traffic/Emissions
- Emergency Preparedness at the Refinery
- Refinery Operations
- Consultation Technical Difficulties
- Other

## Summary of Responses

**Table 1** presents a summary of the comment themes during the public consultation process, along with Parkland responses by theme. A complete listing of all individual comments received is included in the appendix at the end of this report.

## Contact us

For more information, please visit our website<sup>[3],[4]</sup> and sign up to receive updates on the study. Our Community Contact Line **604-257-4040** is available for you to register your concerns regarding the Burnaby Refinery. Alternatively, you can email us at [CommunityBC@parkland.ca](mailto:CommunityBC@parkland.ca).

**TABLE 1. SUMMARY OF COMMENTS RECEIVED DURING PUBLIC CONSULTATION<sup>1</sup> AND PARKLAND REFINERY RESPONSES**

COMMENT SUMMARY	PARKLAND REFINERY RESPONSE
<b>Purpose of the Human Health Risk Assessment</b>	
<p>Respondents requested further clarification regarding the purpose and motivation for the human health risk assessment (HHRA), including the details of the proposed Metro Vancouver Regional District (MVRD) air discharge permit application discussed in the HHRA Workplan. Respondents were also interested to understand how the HHRA would incorporate the impacts of changes in air emissions levels associated with past additions of refinery tanks, or the future changes associated with the proposed permit amendment.</p>	<p>In response to a request by Fraser Health Authority (FHA), the Human Health Risk Assessment (HHRA) was initiated to support Parkland’s application to renew and amend the Metro Vancouver Regional District (MVRD) air permit for the Parkland Burnaby Refinery (“the Refinery”) set to expire in July 2022. This air permit dictates the emission limits for the facility. The HHRA forms a key component of the permit amendment process.</p> <p>All of the past and planned emissions reductions to be achieved by the use of new technologies and infrastructure at the Refinery will be incorporated into the permit amendment. These reductions encompass nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>), and fine particulate matter (PM<sub>2.5</sub>) emissions from the Refinery. Full details of these emissions reductions will be documented in the HHRA report.</p> <p>The HHRA will utilize air quality data from monitoring stations maintained by MVRD, as well as predicted air quality levels for three (3) scenarios as detailed in the HHRA Workplan. Full details of the measured air quality levels and model predictions for future air quality levels expected after the proposed amendment will be included in the HHRA report.</p> <p>Parkland Refinery intends to update the HHRA on an ongoing and as-required basis in the future.</p>
<b>Proposed Study Area for the Human Health Risk Assessment</b>	
<p>Respondents indicated an interest in seeing the study cover a broad area in both the east-west and north-south directions, as well as a range of elevations.</p>	<p>The human health risk assessment (HHRA) study area is defined as a 10 kilometre (km) by 10 km box centred on the Refinery. This box encompasses all locations predicted by recent Air Quality Assessments to experience exceedances of current MVRD NO<sub>2</sub> and SO<sub>2</sub> air quality objectives. The HHRA report will include maps that show predicted concentrations of each chemical of potential concern (COPC) and associated health risk levels throughout the entire study area for the three (3) modelled scenarios. The topography of the HHRA study area is variable and ranges from sea level to over 370 meters above sea level on the top of Burnaby Mountain, and concentrations of each COPC and associated health risk level will be predicted across all elevation levels within the study area.</p>

**COMMENT SUMMARY****PARKLAND REFINERY RESPONSE****Air Quality Monitoring in the Area Around the Refinery**

Respondents indicated an interest in understanding who operates air quality monitoring stations near the Refinery, how the sites of those stations are chosen, and how decisions are made regarding what chemicals to monitor at each station.

All air quality monitoring stations located near the refinery are operated by MVRD, which makes decisions regarding monitoring station locations and chemicals to be monitored at each station. Parkland currently provides funding support for the operation of the MVRD stations at Capitol Hill (Harbourview) and North Burnaby (McGill Park). Parkland is currently working with MVRD on the installation of an additional permanent monitoring station on the north shore of Burrard Inlet.

It is important to note that the HHRA will not rely solely on monitoring data gathered by MVRD stations, but will also include the results of an air quality dispersion model which predicts concentrations of chemicals of concern throughout the entire HHRA study area.

**Proposed Approach to Evaluate Health Risks**

Respondents expressed interest in the following aspects of the proposed approach:

- the list of chemicals of potential concern proposed for the HHRA, and the exclusion of methane and volatile organic compounds (VOC) other than benzene and 1,3-butadiene;
- the proposed time period for the HHRA;
- the inclusion of plant health and vegetation impacts;
- the methods that will be used to process air quality data used in the study;
- the inclusion of health risks such as asthma, leukemia, and other cancers;
- the relative complexity of the proposed methodology.

The HHRA will be completed in accordance with the “British Columbia Guidance for Prospective Human Health Risk Assessment” and “Health Canada Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment”. The HHRA Workplan, including the rationale for the selection of chemicals of potential concern (NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>2.5</sub>, benzene, 1-3-butadiene), has been reviewed and approved by MVRD, the Fraser Health Authority and the First Nations Health Authority (FNHA). Methane has not been included in the HHRA because it is primarily of concern as a climate-warming contaminant and exposure to the levels of methane found in outdoor air does not represent a direct human health risk.

The time period selected for the HHRA (2017-2019) represents the most recent three-year period for which validated air quality monitoring data is available from MVRD. In addition to this monitoring data, the HHRA will also include dispersion model predicted air quality concentrations that reflect the future implementation of refinery changes in the proposed permit amendment.

The potential impact of Refinery emissions on soil quality will be assessed in the HHRA report.

The HHRA will evaluate both non-cancer and cancer effects, as applicable for each chemical of potential concern (COPC). This will be described in detail in the HHRA report, where a detailed toxicological review of exposure limits for COPCs will be presented.

Data used to support the HHRA will be provided as an appendix to the HHRA report, and the report will include detailed documentation of any procedures used to summarize or clean input data prior to prediction of health risks.

The HHRA report is a technical document; all reasonable attempts will be made by the study authors to ensure that the technical content is complete, transparent, and communicated in a manner that meets regulatory requirements as well as understandable by all interested parties. Parkland Burnaby Refinery intends to update the HHRA on an ongoing and as-required basis in the future.

COMMENT SUMMARY	PARKLAND REFINERY RESPONSE
<b>Population Groups and Locations of Interest</b>	
<p>Respondents expressed an interest in seeing health risks evaluated for several different population groups and locations, including:</p> <ul style="list-style-type: none"> <li>• students who live and attend classes at Simon Fraser University (SFU);</li> <li>• residents near the Refinery who work from home;</li> <li>• visitors who use the areas near the Refinery for greater than 2 hours at a time;</li> <li>• users of parks and recreational facilities near the Refinery, including the TransCanada Trail;</li> <li>• those who consume food grown or fish caught near the Refinery.</li> </ul>	<p>The HHRA Workplan outlines the population groups of potential concern within the Study Area that encompasses a 10 km x 10 km box centred on the Refinery. The groups include a number of life stages (infanthood through to adulthood) under a number of different exposure scenarios. Sensitive groups such as asthmatics, children, and the elderly will be evaluated in the HHRA. Other specific groups are as follows:</p> <ul style="list-style-type: none"> <li>• First Nations community members;</li> <li>• Students who live and attend classes at Simon Fraser University;</li> <li>• Residents living and working within the HHRA study area will be evaluated, in addition to workers who work near the Refinery but live elsewhere;</li> <li>• The visitors' exposure scenario is meant to represent any short-term exposure within the HHRA study area, whether that be for recreation, shopping, or other purposes. This will be clarified in the HHRA report;</li> <li>• The visitors exposure scenario will include exposures at the waterfront, Confederation Park, park area below Confederation Park, Trans Canada Trail, the Heights, and Capitol Hill;</li> <li>• Deposition of COPC and potential for subsequent uptake into food items will be evaluated in the HHRA report.</li> </ul>
<b>Human Health Risk Assessment Authorship / Review Process</b>	
<p>Respondents expressed an interest in understanding the qualifications of the firm undertaking the HHRA, as well as plans for peer review of the completed study. Respondents also suggested that a glossary would aid in the understanding of the finished HHRA report.</p>	<p>The Refinery has retained a third-party consultant, WSP Canada Inc., to complete the HHRA. The WSP project team includes toxicologists, health risk assessors, atmospheric scientists and chemical engineers; providing the expertise necessary to understand all aspects of this project, from refinery emissions to atmospheric processes to human health, chemical exposures and health risks. A full listing of the HHRA report authors, along with details of their credentials and experience, will be included in the HHRA report. The risk assessment approach that will be applied in this HHRA will build on the approaches applied in the previous 2002 and 2013 studies and will follow the frameworks outlined in Health Canada and BC Ministry of Health HHRA guidelines.</p> <p>The HHRA will be critically reviewed for accuracy and completeness by regulatory agencies and public health authorities including MVRD, FHA, FNHA and Vancouver Coastal Health (VCH). In the event that an additional peer-review is required, we will obtain the support of the necessary third-party expert(s).</p> <p>The HHRA will include a glossary to define acronyms used in the report.</p>

COMMENT SUMMARY	PARKLAND REFINERY RESPONSE
<b>Other Comments</b>	
<b>Truck traffic/emissions</b>	
<p>Respondents expressed a strong interest in the health and safety impacts associated with vehicle traffic travelling to and from the Refinery through the surrounding community.</p>	<p>The current HHRA is being conducted in support of Parkland's application to amend its MVRD air emissions permit, which covers emissions occurring within the Refinery fenceline. As such, assessment of activities and emissions occurring outside the Refinery fenceline is outside of the scope of the current study. Parkland acknowledges concerns related to vehicle traffic and will continue to work to reduce traffic impacts on the community. For immediate concerns related to truck traffic, please call 604-257-4040.</p>
<b>Emergency Preparedness</b>	
<p>Respondents expressed an interest in understanding mitigation strategies and warning systems in place to respond to emergency events that may occur at the Refinery.</p>	<p>Emergency response planning and preparedness are core parts of Parkland's operational philosophy. We have extensive personal and process safety procedures which are designed to protect the integrity of our on-site operations and mitigate the potential for incidents such as an unintended release of product, fire or explosion. For further information related to emergency preparedness, please visit <a href="https://www.burnabyrefinery.ca/en/safety-environment-reliability/emergency-preparedness">https://www.burnabyrefinery.ca/en/safety-environment-reliability/emergency-preparedness</a> or call 604-257-4040.</p>
<b>Refinery Operations</b>	
<p>Respondents expressed an interest in day-to-day Refinery operations and particular events they observed.</p>	<p>For questions related to Refinery operations, please call 604-257-4040 or visit <a href="https://www.burnabyrefinery.ca/en/operations">https://www.burnabyrefinery.ca/en/operations</a></p>
<b>Future Plans for Refinery</b>	
<p>Respondents expressed an interest in understanding Parkland's future plans for Refinery operations, including the processing of biofuels. There was also interest in understanding if the refinery would be shipping lighter fuels such as methane.</p>	<p>Parkland is currently developing plans to significantly expand the processing of low carbon biofuels at the Refinery. At this time Parkland does not have any plans to increase its handling of lighter fuels such as methane beyond what is required to support refinery operations.</p> <p>Any future projects and modifications to the Refinery that result in changes to air emissions will require additional amendments to the MVRD air emissions permit for the facility. The application for any future permit amendment will include updated air dispersion modelling and an updated HHRA to quantify any changes in health risks associated with changes in emission levels.</p>
<b>Consultation Technical Difficulties</b>	
<p>Some respondents indicated difficulties accessing the HHRA documents and leaving feedback via Parkland's website.</p>	<p>Comments noted. With respect to difficulty accessing documents or webpages on Parkland's website, please email <a href="mailto:CommunityBC@parkland.ca">CommunityBC@parkland.ca</a> or call 604-257-4040.</p>

COMMENT SUMMARY	PARKLAND REFINERY RESPONSE
<b>Other Comments (continued)</b>	
<b>Other</b>	
Respondents provided a number of other general comments regarding the emissions from the Refinery, and its place in the community.	Comments noted.

**Table 1 Notes:**

- 1 Public Consultation occurred August 15 to September 12, 2021.
- 2 <https://www2.gov.bc.ca/assets/gov/health/keeping-bc-healthy-safe/healthy-communities/bc-hhra-guidance.pdf>
- 3 <https://www.canada.ca/en/health-canada/services/publications/healthy-living/guidance-evaluating-human-health-impacts-risk-assessment.html>

**ACRONYMS**

<b>AAQO</b>	Ambient Air Quality Objective	<b>NO<sub>2</sub></b>	Nitrogen Dioxide
<b>AQ</b>	Air Quality	<b>PAH</b>	Polycyclic Aromatic Hydrocarbon
<b>AQA</b>	Air Quality Assessment	<b>PM<sub>2.5</sub></b>	Fine Particulate Matter
<b>CAAQS</b>	Canadian Ambient Air Quality Standard	<b>RTA</b>	Refined Technology Assessment
<b>COPC</b>	Contaminant of Potential Concern	<b>SFU</b>	Simon Fraser University
<b>FAQ</b>	Frequently Asked Question	<b>SO<sub>2</sub></b>	Sulphur Dioxide
<b>HHRA</b>	Human Health Risk Assessment	<b>TRV</b>	Toxicity Reference Value
<b>KM</b>	Kilometre	<b>UBC</b>	University of British Columbia
<b>MV</b>	Metro Vancouver	<b>VOC</b>	Volatile Organic Compound

## APPENDIX TABLE - INDIVIDUAL COMMENTS RECEIVED DURING PUBLIC CONSULTATION

COMMENT RECEIVED
<b>Purpose of the Human Health Risk Assessment</b>
What is the purpose of the human health risk assessment? According to Parkland's FAQ, a scientific process that assesses the potential human health risks from exposures to environmental contaminants. Data is collected by chemical engineers; provides information to the Metro Vancouver Regional District and Fraser Health Authority. What value is data evidence of harmful emissions to area residents health when it is recorded after the fact? It is too little, too late. The harm to health has already occurred.
Please remind us what the amendment to the permit consists of? What is the relation of the amendment to the reductions in NO <sub>2</sub> , SO <sub>2</sub> etc.?
I think this kind of study is helpful to learn about the facts so that development projects can proceed with focussed and scientific attentions to the environment and human health.
With the additional expansion and new tanks, how will the overall increase in the emissions be lowered? Your statements are misleading. Based on the information provided there are no levels given of the amount of air emissions, only the type. How is it possible to assess any changes to previous refinery emissions when the proposed vs existing amounts are not given?
<b>Proposed Study Area for the Human Health Risk Assessment</b>
Living here and seeing ebb and flow of air across our neighbourhood makes me wonder if the study should be extended to east and west, paying attention especially to elevation.
Not clearly visible from the map, but include the area all the way south to Kingsway. The low area between Burnaby and Deer lakes might trap Hazard elements.
<b>Air Quality Monitoring in the Area Around the Refinery</b>
Although the HHRA Draft Workplan states that the HHRA will include "First Nations residential communities" individuals who live in the First Nations residential communities near the Facility" as human receptors and the nearby Tsleil-Waututh Nation is included in the HHRA spatial extent, there are no MV AQ stations located within any residential areas of the Tsleil-Waututh Nation.
Why do monitors on Capitol Hill (Harbourview) not gather data on benzene and butadiene and other VOCs? Why use monitors only at the perimeter of Parkland refinery? More residents live on Capitol Hill or on Burnaby Heights and it is their health that is being affected and their risk should be analyzed.
Why not set up a monitor at Barnet Marine Park which is highly frequented in the summer, and for more than two hours? The west-to-east air-mass movement is well known, funneled by the shape of the hills along the Inlet. That is the rationale for a monitoring station in Port Moody. On some warm days groups spend four, six even eight hours at Barnet Marine Park, so their exposure to emissions would be non-trivial.
We have been informed that Parkland has technology through air monitoring stations that provides the readings of chemicals in the air but who determines where the monitors for emissions are placed? If monitors are in an area that is open to constant air flow giving a safe reading what about high level concentrated areas?



## COMMENT RECEIVED

### Proposed Approach to Evaluate Health Risks

Data are to be drawn only from 2018 and 2019 which means that when the study is released in 2022 the 2018 data will be 4 years out of date. Normally a statistical time series is more significant if a three year span is chosen over a two year span. Why are more recent data not being used? How can such limited and out of date evidence be relevant to the community now and in the future?

Based on the information provided there are no levels given of the amount of air emissions, only the type. How is it possible to assess any changes to previous refinery emissions when the proposed vs existing amounts are not given?

Study of VOCs limited to benzene and 1,3-butadiene in this iteration. Approach asserts that the fence line monitoring in 2022 will provide new dataset. Will there be an update to the Health Assessment afterwards to incorporate this information?

List the COPCs in the order of harm to human and plant health.

Why is not methane included in this study? The oil and gas industry is one of the biggest emitters of methane? What are methane emission levels from this Refinery, and what are the health risks of methane emissions to the study populations?

PM<sub>2.5</sub> data will be cleaned i.e. input of summer wildfire smoke will be removed? How is this done? Is it reliable? We wish to have both data sets please, one cleaned and one not cleaned; we wish to submit these data to rigorous methodological modelling.

Effects on vegetation, such as vegetable gardens, native plants, ornamentals I would be particularly interested/ concerned with effects on edible plants that local residents grow and eat - effects on local fish, shellfish, edibles, etc. that local residents gather/catch and eat

Will health risks like asthma, leukemia and other cancers be assessed as they were in the 2002 and 2013 studies?

Good Idea but difficult for lay person to assess.

Sounds reasonable, but difficult for the lay person to assess it.

## COMMENT RECEIVED

### Proposed Approach to Evaluate Health Risks

The Eastern edge of the study area includes Simon Fraser University, in particular areas of student housing. I suggest that students who live and attend classes at SFU are just as valid a group as the proposed High School Students.

I don't understand why there should be a study category of Workers (8 hr x 5 days x 50 weeks) when there are residents who live and work at home for longer periods.

The Visitors category is silly. There are all sorts of activities that exceed the suggested 2 hours of recreation in the waterfront area. A trivial example would be those of us who shop 1-2 times a week at the Safeway store at Hastings and Willingdon.

People who regularly use Confederation Park: seniors, walkers, bocce ball players, soccer players, la crosse players, splash water park users (children and adults), picnickers, lawn bowlers, skate park users. Additionally people who use the park area below confederation park hiking down toward the beach: this includes children, families, dogs, dog walkers, seniors. Additionally people who use the Trans Canada Trail both I. The Heights and Capitol Hill: bicyclists, seniors, families with children, dog walkers, thruway hikers, etc.

Gardeners and consumers of what is grown – people who fish and eat their catches

The immediate neighborhood at least.

Bicycle commuters along TransCanada trail

### Human Health Risk Assessment Authorship / Review Process

Is Parkland doing their own survey or is an unbiased outside firm doing the work?

The HHRA helps the refinery to gauge the continued safety of our operations but who is gauging the health impact of these emissions on area residents and what efforts to gauge human health is being done? Will there be a health researcher or doctor on the team or is this only an engineer examining emission statistics, frequency, and intensity?

I was a senior executive at Stantec for many years, so I feel I am qualified to make the following comment. The HHRA is a highly technical study, and only a properly-qualified Environmental Engineering firm has the expertise to make any informed comments about the proposed study area and approach. So my question is as follows: Will Parkland submit the proposed study to a properly-qualified firm, other than WSP, for an independent external peer review prior to it being finalised? If not, why not? In Stantec we had a policy, mandated by our ISO9001 certification, that required all such studies to be externally peer reviewed prior to completion. Both WSP and Parkland are ISO9001 certified, so I would hope that they have similar policies about independent peer reviews for studies of this significance.

Which experts will determine the health risks of Parkland Refinery emissions and effects? Will there be an epidemiologist or health researcher (doctor?) on the team, or will the team only be engineers examining emission statistics and frequency + intensity distribution?

The 2002 Health Assessment study conducted by UBC professors was independently reviewed and assessed by an external reviewer from the University of Alberta. Will there be a similar external review of this study to ensure its accuracy and completeness?

It is disappointing that the authors of the report, and those responsible for publishing it as part of this community engagement, did not do a better job of proof reading. Page 10 of the WSP report has the header APPENDIX B but it is really Appendix A. Less important is the repeated phrase "10 km x 10km". The space between number and unit is correct, of course. One error can be dismissed as a typo, but repeating it demonstrates a lack of attention to detail. A glossary would be helpful. You should not expect members of the general community to recognize or remember abbreviations such as COPC, PAH, RTA AQA, CAAQS, AAQO, TRV.

## COMMENT RECEIVED

### Other Comments

#### Truck traffic/emissions

I think it is a good idea but should include the pollution caused by the tanker trucks travelling to and from the refinery on Willingdon Avenue.

Study should include environmental impact of tanker trucks going to and from the refinery on Willingdon Avenue.

One concern I have is with the dramatic increase of tanker trucks along Willingdon. It seems that a couple of truck go by every 5 minutes or so, 7 days a week and from morning till late at night. These trucks emit a lot of pollution because they are diesel. I have notices a significant amount of black soot accumulate on our patio and vehicles. We live less than a half block from Willingdon. In addition the trucks are quite noisy and in many cases seem to be going too fast considering the volatile nature of what they are transporting. The amount of pollution generated by these trucks should also form part of the study.

Concern about impact on our community, both with respect to traffic and chemical release.

The number of tanker trucks that go back and forth to the refinery has increased exponentially the last few years. It seems that a couple of trucks drive by every 5 minutes from morning till night 7 days a week. I have notices a considerable increase in the amount of soot accumulating on our patio and vehicles. The pollution and noise generated is very concerning. These transport vehicles should definitely be included in the study.

#### Emergency Preparedness

My family with young children live in The Heights and we worry about whether Parkland has the proper risk mitigation strategies in place should a catastrophic event occur and harmful chemicals are released into our neighbourhood.

At the time of the harmful chemical emissions from Parkland, what emergencies are in place to warn area residents?

#### Refinery Operations

This morning Sunday August 29th, there was a heavy petroleum smell in Brentwood Park from the refinery. The refinery is polluting not only Capitol Hill and The Heights, but other neighbourhoods in the vicinity! This widespread pollution is not acceptable. It is not good for our health.

#### Future Plans for Refinery

Parkland is moving towards biofuels. What specific emissions occur with biofuel refining, and what are their effects on human health? How will those effects be measured, both during the study and over a longer time-series when a re-study has to be done?

Will the facility be transferring any lighter fuels? Methane, propane?

#### Consultation Technical Difficulties

I expected the "survey" to be more than a place to leave comments.

In the previous text you've provided nothing appears on my iPad when I try to open HHRA Frequently asked questions Parkland Burnaby Refinery HHRA Draft Workplan Both would be useful for my understanding of the situation

COMMENT RECEIVED

Other Comments (continued)

Other

The refinery has been there for a long time. I believe the risks can be mitigated

Air pollution from the refinery needs to be reduced significantly.

I want cheaper gasoline for that we need refineries

Science always evolves and as a result guidelines always subject to change. Therefore, I don't support a refinery so close to such dense residential area.