

Air Emissions from the Chevron North Burnaby Refinery

Appendix B

Comments and Suggestions from Community Residents

Date: 6 July 2002

Summary:

We received 165 responses to our request for community input via mail, email and fax. The majority of respondents chose to make comments and/or suggestions about the study, and these are shown below in their entirety. Names, phone numbers, and other similar information has been removed to ensure privacy. The comments spanned a wide range of opinion with most expressing some degree of concern about refinery emissions. Comments were useful to the researchers by providing observations about when emissions from the refinery, especially those resulting in odour, were felt to be worst. Other comments were helpful by mentioning specific health outcomes that concerned neighbours. The most frequently expressed concern was about potential impacts on respiratory health and allergies. Many people commented on deposits on their vehicles and elsewhere on their property that they believe had originated from the refinery.

Community comments (*verbatim*):

1. It smells around here a lot of the time! We take our dog for walks down the inlet and often see what looks like oil seeping from the ground on the path. Have you ever thought of checking air quality in the middle of the night? We can be awakened by the stink.
2. I am a senior who has lived in this area since 1956. Things are better now than they used to be, but I don't like to hear about this last MBTE spill and the water. I often feel that they are emitting small amounts of SO₂. It has become worse for residents since smoke stacks were raised. Often on weekends in the evening they burn off something that burns with a bright pink flame. What are the health risks of continued long-term exposure to low levels of SO₂ in the air?
3. There is one permanent emissions monitoring station at Harbour View Park and another mobile station around. Who monitors these? I would like to see it analyzed and monitored by an independent source. Not the refinery. Not the municipal government. I have experienced headaches from the smells created by Chevron. It's particularly bad early in the morning. I cannot open the window to let in fresh air. I believe someone should take a close look at the ecology around and in the site.
4. It's disgusting how the GVRD, Environment Canada, Van Port Commission and Burnaby municipal government have ignored this problem and put money ahead of the health of Burnaby citizens. The air has a funny odour, like leaded gas, especially at nights and very early in the morning. It doesn't smell as strong in the daytime, which makes us suspicious if the refinery is release emission into the atmosphere at nights when everyone is indoors and asleep.
5. Maybe you should do a study to see how many people who live in the area suffer from diseases indirectly related to air emission. E.g. asthma, cancer, other respiratory problems and compare it to other places that don't have a refinery. Just curious to see if there is a higher incident of disease in this area compared to like West Van. Who is on committee? Deadline for report? What will be done with the report? Will the refinery make things

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better? (eliminate - not delay)

6. Often a smell of rotten eggs or oil in the air. Once there was a shower of dust that came into the whole neighbourhood. I would like to see all the area cleaned for better environment of water, animals, etc.
7. From what I have learned Chevron has never met air emissions regulations for clean air. They should move to the USA border or better still Texas.
8. A refinery in a residential neighbourhood makes no sense. They're going to clean up their MTB's by polluting Burrard Inlet.
9. There have been reports of leaks of chemicals in the oil refinery. Certainly these chemicals are hazardous and lethal to the environment, animals and human beings. We also catch foul smells when breathing, every now and then. And feel discomfort in the respiratory system.
10. We hope the GOVERNMENT will introduce special laws to control air emission and operations of the oil refinery. We just ask for cleaner air and good health.
11. During daylight hours smoke from their stack is white - after dark smoke is very dark - why? Is there emission coming out at night that are not during the day?
12. Greasy air substances necessitate every 6 months power washing out vinyl outdoor decks. Even this cannot remove the substance. We are one block from the refinery. I have (several times) seen an oily surface on the water in the ditch along Penzance Avenue - which carries quite fast flowing water off the slopes of Capitol Hill and Confederation Park. Since moving to this area 8 years ago I have had many recurrent eye-nose allergies - intense irritation and blockages - these frequently begin to occur around 3am. No previous problem. No confirmation of the cause but I'm suspicious of the circumstances. Infrequent but strong smells seem to originate from the refinery. "Bad gas" odour untraceable to any other known source. Often worse in the summer Thanks for your concern.
13. This is what comes with over population I guess! I have lived 4 blocks from the refinery for 40 years. I used to dust my patio furniture (normal dust) - now and in the last 2 decades it is black soot, which we are breathing in. Whether this has to do with emissions of other pollutants or both who knows.
14. You should check out the wind patterns. It also blows in around Capitol Hill and it is foggy east and west of the hill and clear to the south. We have lived here on Capitol Hill since 1971 and very, very rarely have smelled or heard anything.
15. I have absolutely "NO" concerns with regard to possible health effects from this refinery!
16. I have resided at the same address for 49 years - raised my family of six healthy children

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there and have toured the refinery. I feel some individuals are making unnecessary noises about emission for public attention! I am sure the management of the refinery are aware of the rules in this municipality.

17. How long is the study? Do you need input from people living in this area re: health problems? Where are you getting your info? I haven't been asked anything and I've been here for 26 years.
18. Rhododendrons (some species) in my garden have spots that appear to be pollution-caused rather than organic. I have problems with congestion (in sinuses?) that disappear when I leave the hill.
19. Spend time on vehicle emissions instead of a single oil refinery. If you don't like the area move out. The refinery has been here since 1935.
20. There is a lot of soot/dust that collects on our deck and roof and skylights. There are a lot of emissions from the asphalt plant across the inlet in North Vancouver and near the 2nd narrows bridge. I have called the GVRD many times about bad air quality and black smoke emissions from Chevron and the asphalt plant. You should check the GVRD air quality complaints here for this area for the past five years. We have lived here 10 years
21. The communications strategy needs less "spin" and more honest responsibility expressed to have credibility. Let's fact it - the place is old and they have no idea what will break next. Does the project remain separate from the other pollution measuring projects being undertaken by the company and the local government? Is there project intercommunications and record keeping?
22. I am interested to know what the volume of spent catalyst that is released in the air. Whether the Nickel contained in it is biologically absorbent. As well if the volume has been reduced say from 5 years ago - before they claim to have upgraded the stack and the ability to remove particulate. Because there are many long time residents in this area - if any there are releases that are accumulative if so your study needs to tell us what the effects are and what symptoms if any should be watched for.
23. Lived in Nbyb - Very close to the refinery for around 15 years. 4 adults. Health issues for 3 suffer from repeated depression. All seem to suffer A LOT from forgetfulness. May or may not be related BUT - I wonder how many people would THINK to tell about forgetfulness. I think a more specific questionnaire further down the line may be more helpful. I am now a stay home mom of 2 children ages 22 months and 5 years. As young people are USUALLY MORE susceptible to things and since all 3 of us spent 99% of our time only blocks from the refinery we'd be MOST INTERESTED in ANY and ALL proven or unproven suspicions to health concerns. Please keep us informed. Good luck and thank you.
24. They may be polluting under the cover of darkness. My friend lives higher up the hill on

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Delta Street and says that it stinks more at night whenever she sleeps with the windows open. We lived here since 1993 December and it seems to me that they don't smell as frequently as they used to. We are a family of 5 and we are all in good health. My main concern is for my 9 year old boy with (mild) asthma...how bad or dangerous will it be for him if the refinery were to have a big accident? Thank you for doing this project.

25. Chevron is simply the wrong business to have in a residential neighbourhood. They do try to fit into the neighbourhood, but the result (bad pollution) of their business upsets the people. They probably don't realize it, but they appear secretive and as money moguls to the people of North Burnaby.
26. As a life long resident I'm not concerned with the health risks from this refinery.
27. Chevron should be checked for the air quality and safety to the neighbourhood more often. These check-ups should be done unannounced to chevron (surprise check-ups) so we can find out what else they (Chevron and Government) are trying to cover up! (Re: water contamination found by two high school students in May 2001)
28. We live right above the chevron refinery and we get all the smells and noises. H₂S smells and nitrate gas fumes. They smell worse on foggy days. The big flame from the stack vibrates our house and black smoke from it goes with the prevailing air currents. We were here when the refinery was built and over the years as they have expanded the pollution has become worse; as long as they are here there is no solution.
29. Chevron is the best thing in our area. We have lived here for a long time, no complaints. I think a lot of the people have been misled by BRACE. You could not ask for better neighbours. Go bother someone else. Why chevron is being picked on is just political. Someone wants points. Get a life. It's the same old thing; a few people want to make a name for themselves, like now we have (Drs) from UBC. This is the best place to live because of Chevron. Can't you find a better cause (e.g. drugs, poverty). You could live in my home and you would never know they were here.
30. When we moved to Burnaby over 30 years ago we were aware of the refinery. There were times the odour was bad but it has improved. We are not complaining. The people making complaints are ALL new residents that also knew of the refinery. Why did they choose to stay? Some of these people are barbequing with a stench that is greater than the refinery. The refinery was here first and I feel they are doing whatever they can to improve the air quality. The complainers should move. I'd rather have the refinery than high rises that block our view.
31. How polluted is the ground water? Tank farm area inclusive. How often do they vent the storage tanks or refinery? I live nearby the tank farm and I can smell rotten eggs and other odours. Are the tanks leaking? Is MTBE still used as an additive?
32. Glad to see research is being done. We need to be sure industry does what is necessary to

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make this a liveable community.

33. Don't know enough about this matter to be able to comment intelligibly! I am a retired person, but I am interested in the results of your research.
34. Should research hybrid vehicles (gas and fuel cells). Encourage more biking. Have small competitions for biking/walking around Nbyb to boost community support.
35. I have noticed several days where cars and everything else are covered by fine yellow powder. Only once was there any acknowledgement of these emissions from Chevron.
36. The frequent odour coming from the refinery has been causing us nausea and headaches. We are forced to keep our windows closed tight even on beautiful warm summer nights (or days). We seem to find the odour stronger at night?! I know people and friends who lived in this area that died from lung cancer (never smoked) and suffered from Parkinson's disease. We are worried the emissions are toxic and slowly poisoning us. Especially affecting ours lungs and brain. We would like to see the Nbyb refinery relocated to a less populated area as soon as possible before more damage is done to our health and environment. We understand the refinery was here before us, but people's health is more important. The refinery should be compensated to relocate.
37. More and more young families are moving into the area - how will these air emissions affect the kids? I am concerned. Prime waterfront property in the centre of the lower mainland is used as a refinery - this area should be publicly owned and used as park/beach land by the public. If offered the right price would Chevron move? We need to hear solutions and ways we can contribute to positive change in this area. What can we, the average concerned resident do to help against the fight for a better future?
38. I am not sure if the emissions relate to the smell but the strongest smells happen at about 3am.
39. We live across from Chevron. 2 long time residents died of cancer. Our cat who used to go down to Chevron died of cancer. The frogs who used to be in our yard every year disappeared last year. That's all I know except that I get an awful lot of colds.
40. Sometimes the air smells bad, sometimes no. Once there was a "yellow cloud" on the road. My brother complains when he cuts the hedge. He says there's some residue of something that makes him sneeze and eye itchy.
41. My neighbours and I can smell something in the air, something different and not very pleasant from the refinery whenever the air pressure around us changes. Since this place is populated and the numbers continue to increase I would like to see this refinery move to a less inhabited place.
42. There seems to be little cooperation between Chevron and Burnaby Municipal Council re

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spills, leakages, etc. Talk to the City's department to get info on spill history and disclosure problems. Chevron sends out a PR letter to neighbours every few months and is a major funder in the local school (Gilmore Elementary - computers etc). You should check on what they are telling residents about your project. Federal MP Sven Robinson has also conducted inquiries and public meetings and met with local advocacy group.

43. Is there any way that a local, daily public testing system can be set up to warn resident about harmful emission levels as they happen (for asthmatics, etc). Please make all your findings public.
44. We are concerned about the impact. Since I came to North Burnaby I have regularly swept a film of black soot off the patio. My first complaint to Burnaby City Health Dept. was met with "that just goes with living in a city with industrial production".
45. We smelled some strange smell outside my house most of the time. I think that smell may come from the refinery. I think we need someone to talk to the refinery company to do something to reduce this air emission.
46. We love this beautiful land. Keep it clean and protect our health. Refineries should have pollution control in place. The air is hard to breathe in this area.
47. The refinery is safe enough or not? In case of fire on it is it easy to extinguish the fire and not affect adjacent residents? The air emissions from the oil refinery are harmful to humans and pets or not?
48. There are times (which is often) when I go out in the morning I see yellow coloured dust on the cars surfaces. Other times. Late at night, there is a strong gasoline odour in the air. I wonder if there is anyone out there who monitors these emissions. Please check and investigate these emissions before any serious health problems occur.
49. We have lived on Capitol Hill for the past 21 years. Every Friday evening we can smell something noxious and unbearable coming from the hill on the north side where the Chevron refinery is located. Many neighbours complain of the same thing. No one complains on weekends, though. But the pattern starts again on Mondays. The monitors that GVRD set up seemed not to have any effect on improving the situation.
50. I live in the area mentioned and walk the scenic and confederation trails nearly every day to get away from the exhaust emissions of automobiles. Quite often we are disturbed by strong refinery emissions. We suggest that the refineries are required to upgrade the filtration system of the air and ground.
51. Would you put the information in relation to other industry emission from Chevron, whatever you are measuring. Vs Canadian Oxy Vs Burrard Thermal Plant Vs Autos/Trucks in the lower mainland. Are you going to be doing any historical health trends on citizens in the area vs. other areas?

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52. The smell is strong and it seems that when I walk near the tanks (McGill Park) I can smell it all the time - every day. The smell is often strongest at night. The city of Burnaby, the province and the Feds should have some control - not just "make recommendations". The latest MTBE still is a classic chevron move. Thanks for this.
53. Living on Capitol Hill I see only 1 air monitoring station. Is there any way to track the Chevron emission to see where they land according to season and the prevailing winds? Chevron's arrogance and persistence on hanging on in this area is intolerable to the majority of residents. Their noise pollution is almost deafening. They simply need to move!
54. Just one question: The oil refinery has been in place for many years, how come the sudden interest? Also, what will be done if there is a health risk? This is a great way to involve people in their interests around the neighbourhood!! Thank you!
55. I have often had occasion to get up in the middle of the night and have noticed emission from the refinery. After I had my car covered in small glass-like particles over a year ago (apparent they were cleaning out a holding tank and these particles escaped) I have been very sceptical of anything that they release. This of course is worsened by the environmental agency in Victoria apparently working hand in hand with Chevron to give them time to clean up this groundwater mess. We don't have time for being sick.
56. The smell of gasoline/diesel fumes are often in the neighbourhood. Hope you will also consider the impact on animals.
57. Occasionally the air in the neighbourhood stink bad! Usually late at night. I think that is very sneaky. We know where the stink comes from. We're not stupid! They will never get the public's trust by pulling this crap. I wish they would move. I know they are polluting the air and the water. For the last year I have boiled all my drinking water. Corporations like Chevron will never get public support, trust or sympathy, no when they treat the public like unimportant nobodies. I believe they think they are God.
58. Air quality is very poor in the North Burnaby Area. I cannot do Taiji outdoors because I can smell gas lead. Once I even phone BC Hydro and said my house has gas leak but they cannot find leakage and said it must be from Chevron Refinery. I don not think Chevron refinery should expand if they cannot fix the air quality problem.
59. There should not be any further expansion of this refinery.
60. Air quality seems to me to be worsening i.e. I can smell gasoline where I live (a kilometre away) more often - especially in the early morning. Smells are stronger closer to Chevron.
61. We have been subjected to strong odours in the night time, strong enough to be awakened from sleep. This would happen periodically, there have been more in the last 2-3 months.

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In the past we could call and report incidence of air quality. This has been eliminated as services to people are cut.

62. The cleaner the air, the happier I am as I have allergies and asthma. With all the extra cars on the road because of the bus strike the air is more polluted. I have not noticed too much of a problem from shell oil - only Chevron and Imperial Oil.
63. My son developed an asthmatic cough after we moved into the neighbourhood...after extensive isolations of the variables (the 5 causes of asthma) we've concluded that his cough was related to air pollution. Also - all residents in this neighbourhood cannot grow tomatoes out in the open. The leaves are too tender for the rain - the turn yellow and die. But if you grow them under a frame (Poly or glass - no rain) they thrive. Also there exists a study of the Port Alberni pulp mill and asthma occurrence in children in proximity that may be of interest.
64. People have to go to work and you know how inadequate the public transit is. Therefore people need to use their cars and we hear nothing but the terrible contribution cars are making to air pollution. We are told to cut down on the use of our cars. Do car-pools, air-care testing, fuss, fuss. Does anyone know how much air pollution is the oil refinery causing? Can you measure the air emission from their chimneys, storage tanks, loading docks? Each car is driven perhaps one hour of the day. The Chevron operation is on 24 hours a day. Cars need to be tested annually - how often is the refinery tested? When they don't meet the required standard do we suspend their license? And I get a terrible headache whenever the wind blows my way from the refinery.
65. There have been reports of leaks of chemical in the oil refinery. Certainly these chemicals are hazardous and lethal to the environment, animals and human beings. We also catch foul smells when breathing every now and then, and feel discomfort in the respiratory system. We have heard government will introduce special laws to control air emissions and operation of the oil refinery. We just ask for cleaner air and good health.
66. Why does the refinery always emit nauseating smells between midnight and early morning? We cannot have our windows open because of the odour during those times. I live [...] literally 3 houses from the refinery tanks. I would like more info mailed to us when any changes or information comes available.
67. Whether the population is affecting health. When we go out for a walk in the Confederation Park we can smell the "rotten egg" all the time, both in the mornings and evenings. Long-term solution - the refinery should be re-located in somewhere where less people are affected. Move to a remote area.
68. We can even smell the "rotten egg" smell as far as Brentwood Mall area. We are tired of hearing problems/accidents all the time. The refinery should be re-located to some remote areas. It seems that they only fix the problems when accidents occur. Wonder about the long-term affect on health to the residents. The bad smell is noticed even really early in the

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morning or late at night.

69. Why don't you leave Chevron alone? Do you realize it is the only operating refinery in the lower mainland? I have lived in North Burnaby since 1928 (2 blocks from the refinery). Burnaby "Now" is in my opinion. Seems to pick on Chevron for a cheap headline.
70. Clouds of water vapour from the refinery cooling towers constantly pour over the Capitol Hill area. Is this water treated or does it contain microorganisms detrimental to health and environment? We have lived on the Hill for 50 years. Our house is white. We originally had to wash and repaint every 10 years. We now have to wash with bleach every year and repaint every 5 years. Is this caused by refinery emissions?
71. Sometimes we smell gas along with the wind. There are a lot of dusts and a mixture of powder of yellow and black colour along in the air.
72. We often smell the stink of Chevron in our neighbourhood. I also walk in the trails near Chevron's refinery and it always smells of gas. We live just on the Vancouver side of Burnaby.
73. To the "Project Team": thank you very much.
74. I was not concerned about the refinery, except for the smell. That all changed when the refinery recently admitted to contaminating the soil with MTBE. Until independent studies revealed the contamination, the refinery did not, and would not own up to anything that appeared controversial or would cause them to accept responsibility for their actions. I do not trust the refinery, and I believe that they must be monitored by an independent agency (and a non-governmental body - the various levels of government have shown that they are incapable of monitoring or policing the refinery).
75. We want to know more as to how does it affect our health and life of being so close to it. If it'll lead to long-term health problems what should we do?
76. Several times in the past 2-3 years (late at night) there have been large blow offs - some form of emission. These are mostly a noise problem for us. We have on a somewhat regular basis smelled in the morning. Burnaby city has not been stringent enough with each new expansion permit - Chevron is still flaring a lot of tail gases, etc.
77. What about other businesses on Burrard Inlet that are located further West on the North Shore and on the East side of the Inlet. What pollution comes from them? Is the plant at the end of Penzance Drive contribution to the overall picture of pollutants? If so, how much and what are they?
78. Are you aware of the noise pollution that the refinery makes? The sound of this refinery is like a dishwasher running 24 hours a day for 7 days a week. We live right in the line of the refinery on top of Capital Hill. We have lived here since 1956 and the refinery is getting

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louder. We also get (once in a while) soot on our sundeck from the refinery and we wonder how healthy can this be? We live by a green belt and a lot of trees seem to be dying. Could this be because of the refinery?

79. The microclimatology of the region is variable, especially between the top of Capitol Hill and its East side. The top of the hill often remains clear of pollution while the slopes are subjected to higher amounts due to a variety of factors: 1 - The katabatic-type winds that flow out of Indian Arm are usually channelled between Capitol Hill and Burnaby Mountain. This causes pollutants to move southward across Hastings Street. This movement, if it occurs during the early morning, sometimes develops a fog over the land. I don't think this is caused by advection, but probably by mixing. 2 - I've also seen fog spiral along the bottom slopes of Capitol Hill in an almost 360 degree pattern. This usually occurs on clear fall nights and probably during radiation inversions/. This air pattern moves pollution from one side of the hill to the other (I'm not sure which direction). 3 - As the refinery on the East side of Capitol Hill has reduced its productivity the number of days with fog has dropped. I hope you will position enough monitors to establish a true picture of the local climate patterns, both horizontally and vertically. There are many retired homeowners in the Capitol Hill area. You might consider training some of them to make daily weather observations.
80. I would like to see regular monitoring of not only air emissions, but the soil and water environment surrounding the area used by Chevron refinery. We commend any work that will focus attention upon activities which may have a negative impact upon our health and environment. Thank you.
81. Kindly be advised that the refinery often released sickening and smell gases at night into the atmosphere. The water around the refinery in Burrard Inlet was often found to be contaminated. We do not think the Refinery is effective in controlling air and water contamination to the environment around it.
82. I am a 23 year resident of the neighbourhood. I would like to be part of the study and receive any information available on a regular basis as to the progress of the team.
83. Living here since 1963 on the North side of Capitol Hill at the end of clearing leading down towards the refinery the noise and emission of the plant hit us before everyone else. Lately we have to move our bedroom into the basement or be leaving the house completely. The pollution of the plant is so strong that we have trouble breathing and tears in our eyes. Noise and emissions have greatly increased in the last few years. Noise and emissions mainly start at 9pm lasting until daybreak. Weekends very little, indicating a different refining process. Monitor on top of Capitol Hill. Wrong locations - should be around Harbour View Road. Our house acts as a noise barrier. We are afraid of increasing the production of this plant because the conditions are worsening. I phoned the supervisors at night about (?) times at night. For instance last night (23 July 2001) the shift supervisor even listened at shortly after 12 o'clock to the noise at our bedroom window and admitted the noise comes from the refinery and is too loud. For years we heard the answer of our

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complaints "WE ARE WORKING ON IT".

84. Air often has an odour, especially in the early morning and evenings. Many Capitol Hill children have nosebleeds. Concerned about poor communication - hiding facts from the public. My children are at risk for health issues. Refinery should not be in such a populated area. I work and live in this community. Something MUST be done.
85. Maybe more accurate reports. No fudging of facts by refinery. We live here.
86. It is good to see an independent team looking at the issue.
87. We suspect Chevron has been discharging very fine ($<<1\text{mm}$) oily particulates into the air as cars in our neighbourhood have been covered with tiny blackish-brown spots. These spots smear into a brown oily streak when scrubbed. They cannot be removed easily and must be mechanically buffed off of the cars. I know Chevron has been discharging large amounts of CO gas into the atmosphere when the quantity of gas is over the design limit of the CO boilers or when the CO boilers are off-line. It was evident by the humming and whistling noises heard by Capitol Hill residents at night during 1995/996. Chevron has admitted to discharging very fine sand (claimed to be clean) into the atmosphere. This left cars in the North Burnaby/Capitol Hill neighbourhood covered in sand. The Naphtha smell is much worse at night. This may be due to atmospheric effects but it could also be due to Chevron venting their tanks at night. This should be investigated. Our experience with Chevron has shown them to be evasive and irresponsible. What are the expected results of the fuel additive, soil and water table, contamination clean up? What levels of contamination are irreversible? In which areas? We would like to know how our health, long-term and short-term, is being affected by all Chevron's discharges-into the atmosphere, on local properties, in the soil and water table, and into Burrard Inlet. How did the soil/water table in Confederation Park get contaminated with Chevron's controversially cancer-causing fuel additive when it is uphill to the storage tanks? Since water never travels uphill, how did it contaminate the soil in Confederation Park? Diffusion? We would like to know ALL the chemicals, especially chlorinated organics that Chevron has released into the environment, their toxicity and the exact amounts that have been released. Further, what is the safe exposure level of each, if any? What level of exposure will children be subjected to by playing on the contaminated soil in Confederation Park? What potential impacts can such exposure have on those with weakened immune systems, including allergies? With regards to soil contamination, we would like to know whether plants, grown for food, could contain or even concentrate these contaminants. What impact will Chevron's effluent discharge have on local marine pollution? In terms of air quality and soil contamination what is the radius, from Chevron, affected by such contamination? An exact specification by street and block would be appreciated.
88. I believe the study should also consider the hydrocarbon and other emissions from the trucks (tankers) travelling the corridor to the refinery. All tankers are vented to allow fumes to escape as the fuel heats up in the tank (particularly of interest in the summer). Good luck.

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89. Contact Pietro Calendiro (former NDP MCA) and Svend Robinson (former MP). Also, there is a team of residents who have formed an action group to address problems with the air quality and ground pollution. Advice Chevron to stop the "good neighbour" approach - it's demeaning to residents who realize that Chevron cannot control the chemical pollution caused by all but a perfect refinery, which doesn't exist... Given that Chevron's storage tanks have not been regularly checked, what steps will be taken in the future to prevent another such undetected spillage? Which arms-length entities will be responsible for ensuring that Chevron conducts business in an environmentally and socially sound manner? A period report, at least twice annually to the community would be a minimal expectation.
90. My car is covered with dust/ash in the mornings and my swimming pool is always needing cleaning because there is a silt on the bottom that is so fine it goes through my pool filter, even when I vacuum the pool. I'm sorry, but this CANNOT be a good thing.
91. To whom it may concern: I have lived in the North Burnaby/Capitol Hill area since 1956 [...] I note two things about this area: 1 - It lies directly South of the Shell Refinery (now inactive, but operation during the time I lived there and well into the 80's I think). The area is in a valley between Capitol Hill and Burnaby Mountain. 2 - Up to the late 80's to early 90's I know of 6 women in a 1 block radius of my home who developed breast cancer. That coincidence seems rather high to me. Is this is the sort of "possible health effect" that you might be interested in? Call me if you need more information...
92. My father died in 1997 from cancer. He was a smoker. My mother passed away last month, she did not smoke but the strange thing was the way their cancer spread was so similar that it makes me wonder how environment played a part. I moved into my parents house in October 22,2000 and shortly after my one year old daughter developed asthma related symptoms, she needed an inhaler. We moved out in March 2001 and she has not needed the inhaler since. I truly believe it was due to the environment.
93. There is a lot of grit that settles on our patio and lawn furniture.
94. I have often noticed a gas/oil type of smell which seems quite localized to the area of Penzance Drive, next to the miniature railway. Sometimes it is over a much larger area, but it is if often present at that one location. Is this for academic purposes or because someone feels existing regulations are inadequate or not enforced?
95. I have lived in this neighbourhood for almost 50 years. There has been a definite improvement in fewer odours. There continues to be unpleasant doors (especially) at night. Respiratory problems were prevalent in family members who lived here in the past. C.O.P.D, asthma and bronchitis.
96. Check the night emission. Check the grounds within 1/2 miles of the refinery - at certain times (when it's hot for a few days) smells come up through the ground and sewer. Even in

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the house.

97. We definitely do not want Chevron to expand their refinery in this beautiful neighbourhood, particularly if there are any health concerns. We would like to have as much info as possible. They do not belong here.
98. There is often a smell and/or a thick haze late at night or early in the morning. We tell our young people to be responsible. Chevron is telling us "not us". We need more responsible corporate companies.
99. Has the BC Cancer Agency conducted a survey to indicate the number of people affected by cancer and where they reside? Is there higher incidence in North Burnaby?
100. Regular foul smell in the area. Gasoline-like seepage from ground at junction of Penzance trail and neighbourhood trail behind the miniature steam railway. (map included). We welcome your study.
101. My husband and I moved here in the fall of 2000. We have been sick ever since with colds, bronchitis, sore throats, chest pains and (myself) anxiety attacks. We lived in Coquitlam and would get a cold maybe twice a year. Please keep us updated on the clean-up and water/air quality. Thank you. Please look up information of MCS (Multiple Chemical Sensitivity) and environmental diseases as we feel we may have developed this since our move.
102. In the past few years since I've lived in this area, my husband and I have both developed odd coughs, intermittent. Mine sometimes wakes me at night. I never have it anywhere else. I had thought it must be the house (I had the dust cleaned, etc) but no real changes. Now I wonder if there's any connection to the refinery?
103. There is a nauseating smell emitted from Chevron every now and then. Any flyers/mail-outs delivered to the door should be bilingual (English and Chinese). There is an increasing concentration of new Chinese immigrants in North Burnaby.
104. While I am concerned with air quality I am also concerned with dangers from environmental damage through negligence and mismanagement. As well, where is the power and accountability of regulatory bodies?
105. Your survey is about air quality and emissions; I assume this includes particulate emissions. I have a vegetable garden at my house about a dozen blocks from the Chevron refinery - I have often wondered whether my garden is contaminated by airborne pollutants from Chevron and the other refineries along the waterfront. Will you be testing the soil? I have lived in this area since 1992. Some nights, especially in summer, there is a bad smell (like cat pee) that I believe comes from the stacks when they turn up the heat to clean them out. I'm told this is usual for refineries. However, other nights (not often) I walk outside and there is a quality to the air that gives me a light headache within minutes. It's not a

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smell exactly, but I am aware that something unusual is in the air. It doesn't become hard to breathe, but I'm aware of the process of my breathing during this time. Sometimes I just leave the neighbourhood until it clears. I have no idea what this is and I've never found anyone else who knows what I'm talking about. I am wondering whether your study will uncover other people who have this reaction, and whether it is related to something at the refinery.

106. I am 45 years old, and was born and raised in the Capitol Hill area, where I still live. My son (age 20) has autism and my daughter (age 17) has epilepsy. I obviously have no idea if this is related to anything in the environment, but the fact that both my children suffer from a neurological disorder makes me wonder.
107. During the summer months, I often wash my van in the driveway. The following morning I find a thin film of yellow dust on the windows sufficient to write my initials in it. I presume that this dust collects as result of a sulphur emission from a refinery.
108. Our large patio for the last few years has so much dirt on it we have to paint it every year. We are on Capital Hill. We face the west side. I do not know if it has anything to do with Chevron refinery. Or it is coming for the sky. It is very costly to do every year as we are pensioners.
109. It's a turn-off! It smacks of racism! Why do you print your Community Response Form in one additional (seemingly Asian) language? Burnaby has a sizeable Italian-Canadian population, all integrated (NOT assimilated), and mostly fully bilingual italian-english. Without a common language--English in this province--it's a racial timebomb! The solution is not--and academics from a university surely know this--to cater to those unwilling to immerse, but rather stimulate the wish to integrate lingually as well. What you are doing is resented by many that have otherwise no racial axe to grind! And it all distracts from your objective: soliciting input!
110. Frequent emissions at night. On a perfectly clear night there will be a cloud over Chevron. Cloud is always accompanied by odour. Odorous emissions occur frequently at night. Often commented on by our guests. Provide us with a Phone # or web site that we can report such incidences right away.
111. There are certain areas in the neighbourhood where the odour is much stronger than others. We don't often smell it very strongly at our house, but it is sometimes very strong in Confederation Park and certainly on the trails north of the park (by the miniature railway) and the trails near the tank farm. We have occasionally called the phone number provided by BRACE (Burnaby Citizens Against Chevron Expansion) to report the smell when it has been strong at our house. Network with the various other community groups who have been working long and hard on this issue. I'm very concerned about air quality in my neighbourhood, for myself and my children. Thanks.
112. THERE IS ALWAYS SOME SMELL OF GAS DURING EVENING THERE MAY BE

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SOME SET OF IN THE RESIDENTIAL AREA TO COLLECT TO UNDERSTAND THE IMPACT TO HUMAN LIVES.

113. I have lived in this area for 12 years: Typically twice every year I experience the following:
1) A yellow sulphur like substance covering our home and decks. Sometimes an apology letter from the Chevron refinery comes too but this now has little meaning given the repetition of the problem; 2) Odours that are oil like in nature. I have a request, rather than a suggestion. I would like you to find out how to stop the yellow substances being emitted and to provide this to residents of the area and to Chevron, with costs, etc. I would like this to be in the form of a more "bullet proof" plan rather than what they can attempt to do. I assume that Chevron is attempting to avoid this but not with any real or solid plan (perhaps because they don't want to pay the money). Of next importance I would want to see the odours discontinue. No other comments, just a question. I wonder how independent your group is - i.e. who is funding your project. I realise the funding source does not have to influence the outcome but in my experience it often does.
114. Yes, I have lived in this area for 5 years and am one of the victims of the toxic emission. Here is some info you might be interested in: 1. A couple of residents near our neighbour died by cancer (including my landlord- lung cancer). I had severe headache when the emission smell come to my window when I am sleeping. My throat was very sore, too. 2. The emission sometimes happened in the midnight or early morning, when people in the sound sleep and were not aware of. Suggestions: 1. Recruit me as one of your research members since I have 20 years of experience of toxicology and human health. I have medical education and obtained a Ph.D. in environmental science from SFU in 1998. I was thinking about this project for very long time and am glad it is happening. I would like to send you a resume if you are considering this possibility. 2. There are a group of people regularly walking in the Confederation Part, in the morning, or walking the trail along the refinery site in the evening. Morning is the time most emission happens and evening some spots have stronger smell than other place. I believe some health research should be done from this group. 3. Monitoring the emission very carefully, specially in the midnight and early morning. Analyse the chemicals that may cause the cancer, such as MTBE, PAH, PCB and other VOS, not just the dust, SO₂ & NO₂. Start as soon as possible. The problems are: 1. Local residents are very naive about the toxicity of the emission and some of them are not very sensitive of the smell, which might be the potential risk for them. 2. The company (in Richmond?) doing the routine test does not test the carcinogens like PAH and so on. 3. The government and company fool each other and them together fool the residence about the truth. 4. We need to set up some kind of alarm system to warn neighbourhood to shut off the window if the toxic air coming out of the factory, if this situation will continue. I have to shut off my window all night.
115. The response form is too general to be of any use. Do you want information about the health of people living in this area or about what emissions people may have noticed (seen, heard or smelled?). I'd like to help but I'm not clear on the purpose of your study. Is it to warn people about potential health risks? To advise the municipal and provincial government on risks to the people of North Burnaby because of the Chevron Refinery? Or

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is it a report for Chevron to show its interest in being a more responsible neighbour?

116. Is there a possibility that Chevron is releasing "whatever" into the air in the wee hours of the night/morning when most people would be unaware of it? We have smelled something in the early morning on occasion but have not called the GVRD environmental line about it. We have called GVRD during the day or earlier in the evenings when we have smelled noxious doors. Suggestions: Check the GVRD files for people who have called regarding smells in the air and follow up with calls to them. I've not been happy with the way the GVRD environmental 24hour phone line works and would be willing to discuss this with your project team if you think it may pertain to your study.
117. There is often a smell of gasoline around the trails that run by the refinery and the tanks. Many in the neighbourhood believe that the refinery pollutes more at night. It would be interesting to know if this is true.
118. 1. I have a very sensitive nose and when the wind is unfavourable the fumes/emissions bother me quite a bit. I normally sleep with the bedroom window open and sometimes the smell of the fumes awakens me usually very early in the morning. I immediately get up and shut the window, then return to sleep. 2. My landlord living in this house died of cancer last January. A neighbour a few doors down also died of cancer a while ago. Suggestions: 1. The team should conduct air quality measurements further away from the plant - say 500 metres or more, dependant on prevailing wind, of course. 2. A thorough study of health histories and statistics including a survey of area resident's health should be included (note cancer stats above mentioned). 3. Perhaps the effects of the emissions/fumes from Chevron are more serious than anyone imagined and a far more extensive, thorough and longer term study should be funded. Personally it seems totally obvious to me that a petroleum refinery is completely incompatible with residential land use and such industrial use should never be located anywhere near residential neighbourhoods, especially near children and pregnant women! Other comments: It is high time this situation is looked into by credible researchers. Perhaps I should mention that one of my housemates is an Environmental Toxicologist with a PhD in Environmental Biology and a Masters in Aquatic Toxicology as well as a medical degree. She would be happy to participate in your study if her skills would be useful.
119. Congratulations on this excellent initiative.
120. In the past Chevron has been less-than forthcoming about any issues to do with air quality. Occasionally they have issued advisories, and in one recent instance they offered to clean the cars of North Burnaby residents after emission of some air-borne pollutant by the refinery. Any data supplied by them is likely to be suspect. Strategic placement of air-quality monitoring stations in the Capitol Hill area is necessary in order to obtain objective data. There is an active group of Burnaby residents under the banner C.A.R.E. (Citizens Against Refinery Expansion) that may be able to provide you with information. We are very pleased to see this initiative and will support it in any we can.

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121. Air currents are such that there seems to be a sulphurous smell fairly frequently in the "Heights" area West of Capitol Hill. I have only experienced very occasional odours. One is a smell similar to burning wax (like a paraffin candle) which occurs only during the nighttime - (under cover of dark when most residents are sleeping). I have also noticed a smell like diesel fuel on a couple of occasions. I have lived here for 5 years and would say that I have personally smelled the waxy smell about ten times and the diesel smell three or four times. Thanks, I have two toddlers. It is reassuring to know that the Chevron oil refinery, the Shell Depot and the Tran Mountain Terminal are under observation and analysis.
122. Could you please provide a description of the research in progress, and include the reason for it? Then one can know better how one can be of help.
123. I have never had allergies in my life and I'm 54 years old. Now I'm always having problems with my eyes watering and nose running and nose bleeds. I have lived in the area since December of 1999. Suggestions: I don't know enough about the emissions to make an informed suggestion for the problems that may exist.
124. I believe you have all the required information by now. Suggestions: Will you set up a monitoring station to track the air emissions from the refinery? There have been major and minor problems arising from this refinery. I am not happy that the refinery company plays down the possible danger and risk on North Burnaby residents. We should do something to prevent a major disaster.
125. Too new here to have much of use. Often notice 'petroleum smell' while out running beside tank farm. Suggestions: I am very wary of any data provided by Chevron. They have not shown themselves to be forthcoming with accurate data recently! They withheld positive test results of MTBE, and even told the media that their tests produced negative results. I see no reason why they would choose to provide accurate data for what could be a potentially damaging report for them. I hope they are not providing the bulk of the data, or that you have some way of verifying it. I'm VERY much looking forward to your results.
126. Hello. I live in North Burnaby area for last two years. Prior to this I was living in east Vancouver for 10 years. In both neighbourhoods with the wind blowing from right direction, we get this foul smell similar to the smell of fumes escaping from gas tank when I fill up my car at the gas station (I use chevron gas stations). Some times it was so intensive almost choking. If you need more input please contact me.
127. I was diagnosed with hyperthyroidism, Graves Disease and Thyroid Eye Disease in September 1999. The doctors didn't know what caused it and said that I had had it for some time. I've often wondered if the refinery could have had a part in it. My neighbour down the road, who has recently passed away, also had thyroid disease. His house is directly across from the refinery. He had lived there for years. I have lived here since 1973. Suggestions: Is there a high rate of thyroid disease in the area or downwind from the

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refinery? I read that MTBE is known to specifically affect the thyroid.

128. Be glad to answer any questions you may have. I've lived in North Burnaby for over 10 years now.
129. I hope that one day soon the refinery will be shut down before we have a major disaster happen or an earthquake that could cause an explosion at the plant causing severe environmental damage and the loss of lives in and around the refinery. The recent information that came out about the spills of dangerous chemicals (benzene and MTBE) and Chevron's attempt to cover-up the spill and downplay its impact. Their continual attitude of disregard for the environment and the people of North Burnaby is troublesome. I hope that your study is non-biased and will be made public and brought to the attention of the print and television media so that more people can become aware of these issues.
130. I have experienced nausea and headache at times when emissions are most noticeable. I think that anecdotal information needs to be gathered from residents to help serve as markers for possible refinery related health problems. Suggestions: Don't get sucked in to Chevron-speak. When they say incident it means accident, they say smell, I say emission. When communicating with public don't call a toxic waste dump a land farm. It would be helpful for you to make a questionnaire for residents asking specific questions you need to have answered to fulfill your mandate. Finally if you have any influence at all get that idiot Miles of the chevron commercials. Good luck with your project.
131. There appears to be more fumes in the summer. Suggestions: To study the effects of the emissions on human bodies, such as lungs, skin, etc. To study the effects of the emissions on other wildlife.
132. The fumes are often their worst in the morning between 5 and 7 in the area to the West of the Willingdon Chevron facility. People who are out during these hours may have more exposure. Suggestions: Just a wish, do a good job.
133. While my family and I do not live within the project boundaries, we spend a lot of time inside of them. And notwithstanding the occasional press about the refinery, I have never noticed the existence of the refinery. My other comment is if people are so concerned about their health and living near the refinery, why are they living there in the first place? If they feel it is a health hazard, then they should move. Personally, I feel that the so-called "high-occupancy lanes" on Hastings Street are more of a health hazard than the Chevron refinery.
134. I power walk several times a week along the Trans Canada Trail between Willingdon and Boundary. Most days I can smell something near the plant, sometimes more, sometimes less. I know that if there's a smell, there are molecules in the air that my nose is perceiving. What I don't know is whether any of those molecules at however many parts per billion are harmful. If so, breathing deeply at an elevated rate might be causing more harm than benefit. I assume you folks know what you're doing. I certainly wouldn't! I'll be very

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interested to see what you find.

135. We often notice odd smells when we're in the area of the Chevron plant. Although the emissions may be officially safe, it's still pretty obvious that there are hydrocarbon molecules in the air. Don't rely on pollution report data from the GVRD! When we called to report a particularly noxious, acrid odor, we were told that no one else had reported anything (implication: it's all in your head; go away and stop bothering us). We live right on the border of Vancouver and Burnaby. However, we are more oriented toward North Burnaby than Vancouver. We do most of our local shopping in North Burnaby, and my husband's jogging route takes him past the Chevron plant. We just bought a house in New West and are moving next month, but we've been in the Vancouver Heights area for more than four years and would still like to participate in your survey, if you think we have information you could use.
136. I can't say I notice a refinery smell all that often, although sometimes it's very apparent. At night you can smell the NV dump too, which is way more obnoxious. But I'm glad to hear that this is being looked into, as most people that live in the city are not always aware that the smells of the city directly affect our health. I get my share of smog since I bike to BCIT 5 days a week. I'm interested to hear of the results of your research.
137. Over the nearly six year period of our residency in the effected area we have smelled several very strong odours, occurring about 6 – 10 times per year. The odours can be described as: "sulphurous"; "acidic"; "sour-methane". The absence of prevailing wind conditions seems to be a factor. Also, we report an increase in respiratory infections and complaints among the family of two adults and two children as compared to our previous residence in East Vancouver. Residents of the effected area as defined by the committee, should be offered the opportunity to voluntarily keep a family health log with a particular focus on respiratory and bronchial complaints.
138. I have lived in this house for 15 years. I have been home all day since mid 1995. When I had to go downtown to work all week, I didn't notice much. But now, I find that there are many days when I can't go outside. In 1997 during the 3 months of dry weather, I had a cough that lasted from July to Sept. I ended up getting chest x-rays at Burnaby General. There was nothing wrong with me, just the bad air here. Suggestions: Send out a questionnaire. I'm sure that people would like to speak out.
139. The oil refinery smell emanates constantly in our neighbourhood. Also, there is a terrible odour of rotting garbage that is prevalent in the evenings. It may, however, be coming from a different source. I can't keep the windows open.
140. I live near Willingdon and Hastings. I have found that the odour in my neighbourhood is a maximum in the very early morning. Say 4-5am. In fact I cannot sleep with my window open because the smell wakes me up. I think that Chevron intentionally releases as much as it can at that time to get away with big emissions while people sleep. During the day, the smell can only be detected a block or so from the plant. Suggestions: If you want to detect

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air emissions get up early! I consider your research area to be very important. Personally I think Chevron should be boycotted. Thank you.

141. I will forward some material to you. Suggestions - do sample personal interviews, interview doctors in the area (Hastings; Gilmore), Longitudinal studies of asthma in schools in North Burnaby compared to schools elsewhere (Gilmore; Confederation park, for example). We are very concerned about the long term effects on health from the emissions from the oil refinery; we are also concerned about accidental emissions, fire, earthquake and lack of emergency preparedness in case of serious accidents; we would like to know what the health consequences are for those who live in the vicinity of a refinery; we would also like to know how the refinery could reduce health risks.
142. We live west of the tank farm/refinery, one block east of Boundary Road. While looking for a house in North Burnaby in 1989, we consciously made a decision to live west of the refinery (upwind) rather than living on Capitol Hill (too close to or downwind of the refinery) or further east (e.g. east of the, now, mothballed Shell Refinery). On occasion (not very often) we do get the odd door smell from the refinery especially if the prevailing winds are coming from the east...they get reported to City of Burnaby Environmental Health Department. This tends to happen during the winter when we get the bad winter storms coming from the northeast. We know friends who live closer the tank farm...a couple of blocks to the south and west who tend to get stronger vapour smells...this has been an issue in the past. We have 3 female children ranging in age from 6 to 11. We have not noticed any overt health issues related to living in proximity of the refinery. Suggestions: **what is the impact of Chevron's flare stack. I understand from news articles from Alberta that flare stack gases are an issue and that Alberta's regulations are not as tough as Texas. **what will be the scope of the area's residents health assessment be? Other than a survey....will blood/hair samples be collected from a random sample of residents in the study area? **suggest trying to match any "immediate" resident health issues/complaints with Chevron's problem events that have happened over the past 12 months. **some senior citizens have been long time residents of this area...suggest you focus on them (a work colleague who was brought up in North Burnaby and whose parents still live here told me story's – circa 60's and 70's -- about area residents having to wash their cars numerous times during the week to keep the particulate matter from the refinery off the cars. Other than getting this via e-mail from a co-worker who lives in the neighbourhood and whose husband works at TRIUMF...this is the first I have heard of this study.
143. The chevron refinery often emits terrible odours into the air. We are not sure whether it is harmful. Some mornings my husband and I wake with mild headaches. When we open the door, we often smell odours from the refinery. Chevron has not been upfront with their neighbours in North Burnaby. We also have a lot of sooty dust deposited on our house and porch.
144. Good luck...I'm hoping for a fair, objective assessment!

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145. It seems that every time Chevron blends gas or moves gas at the tank farm, the gas doors are very noticeable. Apparently, Chevron can slow down these processes to reduce the vapours emission - why can't they do this automatically rather than waiting for complaints? Can you research this aspect? I hope the air pollution is not as harmful as it is obnoxious to smell and inhale.
146. We need to have a written commitment from whatever level of government of how Chevron will be monitored for its emissions and how Chevron will be forced to comply with acceptable health standards. I am so pleased that you are researching the potential health effects. Thank you.
147. At certain times, you can smell a strong odor from the Refinery / Tank Farm through out the neighbourhood. I would be interested in knowing how long it will take before the report will be available.
148. Monitor refinery emissions at night! Over the last 25 years I have observed that the smell and obnoxious odours are most intense in the early hours after midnight when most people are asleep and I have just returned from late shift work. Try to convince refinery management that honesty is the best policy. I know they (management) would view that last line as a joke. I assure you I am not joking. Thank you.