

The failure of professional reliance in BC to protect the health of people and the environment

Thank you for this opportunity to comment.

I am a retired Physician who has worked for the better part of 45 years in Northern British Columbia both as a general practitioner and as a Medical Health Officer. My last position before I retired at the end of 2013 was as Chief Medical Health Officer for Northern Health.

I am grateful for the opportunities that have come my way to work in the North and to observe the interactions between industries, governments, communities and the people whose welfare, all of it should be in aid of. It has been impossible not to see the cyclical nature of boom and bust in resource dependent communities over the years and a bit mystifying to realize just how little attention has been paid to understanding what it would take to make things more sustainable. Although we know that stable families and communities act as incubators for healthy citizens, we persist in imagining that industrial camps, one industry towns, and dependence on market forces out of our control can somehow be made healthy as long as we disinfect the water and regulate food sources. And yet we know better both intuitively and in light of a large body of public health research.

The reason for my submission is to share what I have seen come out of privatized science and health assessment over the past decade or so. I find it sad because it has caused us to lose ground with respect to public health and the public good. I am optimistic precisely because it is on the table for examination and discussion. This is what I have noticed:

Professional reliance whereby the task of assessing the impact of industrial development on human health and the environment is routinely carried out by consultants hired by project proponents increasingly became the norm over my last decade of work. Seeing first hand how “evidence” and “science” lost their meaning and became catchwords used to manipulate public opinion rather than illuminate the issues that were vitally important to the health of the people in my region was like watching a public health train wreck. The reports became glossier and glossier, the lists of professionals with impressive sounding initials longer and longer at the end of the reports, the data more and more technical looking and obscure, and the “conclusions” less and less justifiable on the basis of the presented data itself.

As consulting firms consolidated their hold on particular niches in the industry that grew to fill the gaps left by cuts to the public service, I watched with growing dismay as public consultations became manipulative rather than informative. Instead of a holistic look at problems that included an understanding of the context of the research and the limitations of the methodology used, it became routine to see fragmented research being oversold as if it were much more than just a carefully selected fragment. Peer review by objective third parties familiar with the subject matter went out the window.

It was interesting, too, to note how often health impact assessment documents were prepared by individuals with credentials that were poorly matched or only tangentially matched to the subject matter. What seemed to matter most were academic initials of any kind and the number of them that could be cited. Few if any of the “health experts” had any actual experience in health care or public

health.

As this unfolded, I noted a conspiracy of silence as governments, proponents and their hired experts ignored and downplayed, the obvious conflicts of interest involved. It seems self evident to me at least, that when you hire consultants to report on something, you hire the ones most likely to give you the result and the report you want. You work with them to revise their work, narrow the terms of reference if necessary, and sell the public the product you want them to read.

Professional consultants regardless of their academic and professional credentials are business people. They compete for work knowing their livelihood depends on satisfying the people who hire them. Project proponents and governments soon learn who to hire to get the product they want. The idea that professional bodies, for example the College of Physicians and Surgeons in the case of physician health consultants would do much more than take action on individual gross misconduct or serious ethical violations, let alone police the appropriateness of the scope or context in which health impact assessments are done is naive and little more than a convenient excuse for the sleight of hand that I observed: government passing off store bought "science" as if it were the work of truly objective professionals working at arms length with the public good as the touchstone for their work.

I will cite two examples of where I saw this store bought pseudo science undermine the public good and in my opinion serve to obscure and minimize public health risks rather than honestly evaluate them

1. The Human Health Risk Assessment of Oil and Gas Activities in Northeastern BC which was released in 2015.

This report immediately gave rise to comments like this from industry: "It's a comprehensive report and I think it demonstrates that people who live and work in northeast B.C. shouldn't be concerned about the impact of the oil and gas industry on their health," said Geoff Morrison, manager of operations in B.C. for the Canadian Association of Petroleum Producers.

The spin on the Report was that all the important questions had been considered and answered: the industry including a massive increase in Hydraulic Fracturing in the region had been given a clean bill of health. What was not said is that this final report in a 3 stage process ignored almost all of the concerns brought to the table by the public in the first stage and almost all of the long term and socioeconomic health concerns raised in the second stage.

With stages one and two in hand the government went to a consulting firm specializing in getting Oil and Gas proponents through regulatory hoops and into production quickly. Initial concerns, and from a public health perspective, vitally important ones, were explicitly excluded from consideration by the consultants as they worked with government to prepare their report. Some of these excluded concerns were:

- impact of oil and gas activity on social endpoints such as addictions, family structures and mental health
- increased impacts due to growth on municipal and regional infrastructure (water and wastewater facilities, housing, security, transportation)
- impacts on access to community services including health care and social services
- impacts of physical impacts of oil and gas activity such as facility density, potential for earthquakes.
- Impacts of oil and gas activity on water quantity {ie, use of large volumes of water}

- destruction of wildlife and aquatic habitat
- quality of life for local residents
- tracking and reporting of adverse health events

All of these impacts that were deemed to be out of scope are listed in the “Phase 2 Direction Document” that the consulting firm produced as it went about the business of limiting its scope to direct effects of chemical exposures associated with oil and gas development.

<http://www.health.gov.bc.ca/library/publications/year/2013/health-risk-assessment-phase-two-direction.pdf>

It is difficult to imagine that anyone with even a passing understanding of the determinants of health in 2016 would attempt to portray a document that excluded almost all of them as a serious attempt to examine the health impacts of oil and gas development but that is precisely what the professional reliance approach facilitated and permitted.

Oil and gas development in the Northeast has proceeded unabated , impeded only by market forces. What the public health impact really is remains a matter of intuition , speculation, observation and deep concern to many. In spite of a professional reliance process that came with a high price tag and considerable hype, the public was left essentially none the wiser about the actual effects of oil and gas development on human health in the Northeast.

2. The Decision by the Ministry of Environment in 2013 to allow Rio Tinto Alcan in Kitimat to increase its SO₂ emissions by up to 56%

Near the end of my time with Northern Health my staff was working with the Ministry of Environment (MOE) as they considered the application by Rio Tinto Alcan (RTA) to begin operating its modernized aluminum smelting facility in Kitimat including a marked increase in SO₂ emissions to over 40 metric tonnes each day. Our research showed that ambient levels of SO₂ that might be expected at these levels would almost certainly increase the number of cases of asthma experienced by residents in the Terrace Kitimat airshed. We also noted a growing body of literature raising red flags about the possibility of long term serious effects from ambient SO₂ pollution including chronic airway disease, and increased mortality from cardiovascular disease and even cancer. We found that in recognition of these problems with SO₂, many similar smelting plants especially the more modern ones around the world used scrubbers of various designs to successfully mitigate the problem. With that in mind we suggested in a letter to MOE that the RTA permit be conditional on them installing scrubbers.

That was our input as public health professionals not aligned with or paid by industry. However with respect to the permit approval process itself, all of the background research was produced by consultants hired by RTA . As well, one of the MOE staff working on the permit was seconded to RTA and his salary paid by them during the process. In addition the materials presented to the public outlining the possible health impacts and pollution effects were prepared by the consultants who also staffed the public meetings and answered people's questions.

In the end, the MOE granted the permit as requested by RTA without the condition that scrubbers be installed; a decision that was upheld by the Environmental Appeal Board several years later. The EAP apparently based its decision on the fact that all had been done according to the letter of the law. Arguments based on an understanding of the flawed and biased science brought to the table by the

consultants were not seen as relevant to the process. The deep conflicts of interest that were played out by the trinity of government, RTA, and the consulting firm were seen as legitimate business as usual.

The initial air shed discussion paper, the STAR report which the consultants prepared was thorough and well worth reading, but the conclusions that the consultants and their employers chose to extract from it and sell to the public were, in my opinion, biased and misleading. They acknowledged the red flags about long term health effects of exposure to SO₂ but knowing that proof of causation is difficult at best, and that expert bodies like the EPA had concluded the evidence was insufficient to conclude either that these effects did or did not occur at expected ambient levels, they chose to limit their discussion to minor and short term effects. Having made their choice to err on the side of putting the public at risk, they proceeded to produce reassuring charts and graphs limited entirely to these relatively minor effects. The evidence was equally strong to suggest there might well be more serious long term consequences but these were simply ignored, not as a matter of science but simply as a matter of choice.

There was then, and still is, much discussion about ongoing monitoring of SO₂ levels and related health affects after the fact, but the population of the air shed is relatively small and the nature of establishing causal links between exposures and health outcomes is fraught with confounding variables such that most effects would only approach certainty when measured over large populations. A cynic might imagine that the consultants understand this very well: essentially there is almost no chance of detecting an effect with the scientific certainty that would legally compel RTA to do the right thing.

A deeper understanding of the epidemiology of ambient SO₂ recognizes that the trend in allowable levels is steadily and rapidly going down year by year as the science becomes more certain. The levels considered “allowable” today almost certainly won't be tomorrow. As is the case for all other respiratory toxins, the easily measured minor short term effects of SO₂ like cough and asthma attacks are indicators of inflammatory damage being done to airways. Over time the chronic effects of this kind of inflammation have been found again and again to increase the risk of cardiovascular disease, cancer, and other serious diseases.

I had a conversation with one of the hired epidemiologists who was spinning the company version of the science of SO₂ at a public meeting in which he agreed with me that the science linking long term and serious health effects to ambient SO₂ pollution was at a similar stage to that of tobacco in the 1950s and 60s when the red flags were flying but not yet to the point where industry could legally be obliged to make changes. So here we both were, with a pretty clear understanding of the situation but with completely different takes on it. He making the case for RTA that the evidence is too weak to force them into action. I as a citizen and epidemiologist in my own right imagining what a wonderful thing it would have been and how many needless deaths would have been prevented if a prudent precautionary approach had been taken to tobacco in the 1950s and 60s!

I will note two important flaws in the “science” that these professional reliance practitioners utilized in their assessment and public pronouncements about the likely exposure of people in the air shed to harmful levels of SO₂:

- **The entire case they made about expected human exposure to SO₂ rested on the reliability of a proprietary air dispersion model called CALPUFF.** All of the conclusions they reached were the outputs of this particular computer model. All of the outputs depended on the assumptions they made going in and on

the data they fed into the program. One of the key flaws in this is that CALPUFF does not model climate change but rather proceeds, in this case, as if the air flow and weather patterns in the air shed will always remain as they were in the year 2008 which they used as a baseline. Ironically the same consultants list “climate change modeling” on their website list of services. For some reason neither RTA nor the government was in the market for this service which would have increased the uncertainty of their projections and forced consideration of possible non best case scenarios. But climate change is real, and the citizens breathing the real air have no choice but to live in the real world and to breath the air that actually exists. .

- **The model and its assumptions does not consider the complexity of multiple pollutants in the air shed but instead considers only the expected effects of individual pollutants as if they acted independently of each other.** Of course they don't act independently but instead interact and react physically and chemically with each other. By not taking this into account the consultants avoided considerations that would add complexity and make their conclusions far less certain. One very important interaction is that between SO₂ and particulates in the air. SO₂ can bind itself to the surface of small airborne particles and precipitate to ground level with these particles which in turn carry the toxic SO₂ deep into the lungs of people and animals that breathe them in. This scenario is especially important in the light of climate change and the likelihood of high particulate levels from forest fire smoke lingering in the air shed, possibly for months at a time. The CALPUFF model goes on merrily predicting SO₂ gas blowing harmlessly away from populations no matter what else is in the air. Again , the people in the Kitimat-Terrace air-shed have no choice but to breath the actual rather than the modeled air. Somehow the professional reliance folks were able to convince the MOE, the public (or at least some of us), and the Environmental Appeal Board that this reliance on their beloved model was somehow actual science.

One final point: I have seen several instances of draft reports prepared by consultants hired by industry and of government being withdrawn, or sent back for revision apparently because the results were not the ones that were wanted. Essentially the consultants had to go back to their computer models and feed in new data until until they got the outcome right. Whatever that is, it was never science and should not be presented as if it were.

In my opinion what is needed is the establishment and or identification of independent bodies staffed with scientists who understand clinical epidemiology and whose mandate is the public good rather than the narrow commercial interests of project proponents. Peer review should be established as a key element in the impact assessment processes. Whether this means turning to universities, the establishment of new oversight bodies, or a rebuilding of the public service , the situation needs to change.

In general, critical evaluation should be sought and seen as valuable rather than as a nuisance. The projects that need these kinds of reviews are usually large and expensive, with the inherent potential to cause long term economic and environmental effects. These things greatly affect the health of the people who live near them and who participate in them. Shoddy science fraught with conflict of interest is the last thing these people need or deserve.

People in BC need and expect better than what the professional reliance model has been giving them over the past decade or so. I hope the commitment to examining this will remain clear and that it will lead to better processes that are transparent and better suited to serve the public good.

Sincerely

David Bowering MD, MHS.