

Expert Panel on Environmental Impact Assessments

Thank you for allowing me to come and present my concerns regarding current Environmental Impact Assessment methods to you today. This issue is of vital concern to all Canadians relevant at both Provincial and Federal levels of Government. Many resource and energy development projects require both Federal and provincial assessments of environmental impacts. I will focus my remarks and concerns on the human dimension of Environmental Impact Assessments in general. To do this I will use examples of things gone wrong in development projects where both federal and provincial (or State) assessments and follow-up are required.

I believe that the models for environmental assessments are similar at both levels of Canada's and the United States' Governments and they share many of the same strengths and weaknesses. Each of the examples I will discuss relate directly to how the Federal EIA respects Canada's Federal jurisdictions and responsibilities such as the health and welfare in indigenous communities, the development of standards related to toxic chemical use and exposures, and issues related to Canadian Charter of Human Rights which guarantees the Right to Security of the Person to all Canadians even when they live in heavily industrialized areas of the country.

In April of 2011, the residents of Kent County New Brunswick, where I live, were informed that South Western Energy (SWN) and several other oil and Gas companies had been granted the right to explore for reserves of Natural Gas over

leased areas covering one seventh of the provinces landmass and possibly impacting approximately one third of the population. We were assured that the companies would have to provide a detailed Environmental Impact Assessment (EIA) and that regulations would be designed to take these EIA findings into account. Therefore any exploitation of Natural Gas that occurred in our province would proceed in a manner that would protect the environment and the population from any harm.

This was the first time that most of us had had occasion to think about or try to understand what an EIA entailed. I had always supposed, that the primary goal of the EIA was to identify the impact that the particular industrial activity being studied would have on the human population in order to put measures in place that prevent harm. I came to understand, however, that the EIA couldn't possibly do that because human beings were not considered part of the environment. In fact the only way for specific human impacts to be studied and understood in current North American EIA models would be if we could have ourselves declared an endangered species. Why, I'm sure you will ask, does that matter?

The argument for the current EIA model, as I understand it, is that if the risks of impacts on water, air, soils and animals and the ecosystems are identified, and regulations developed to "mitigate" the identified risks, then humans should be safe. But the EIA is only the first stage of a process that leads to regulation and enforcement. A flawed EIA can lead to horrible consequences. Failures at any of the

subsequent stages of regulation and enforcement of development and production of will only exacerbate these problems.

I invite the panelists to read many of the reports of Federal and provincial Auditors General and other scientific reports on subjects relating to the actual follow-up monitoring and enforcement of the identified risks and impacts of mining projects and the building of dams in (British Columbia), pipeline monitoring and air quality issues in Alberta, forestry activity in New Brunswick.

Fracking and Human Welfare

I'll talk about Unconventional oil and Gas Development (Fracking) because it's the issue I best understand. The practice of unconventional oil and gas development, known as fracking, offers a compelling example of Environmental Impact Assessments (where they were eventually carried out) leading to regulation development in human spaces that were not based on specific scientific knowledge of the determinants of human health, social and culturally significant values, human toxic exposures, the need for baseline health assessments or the need for health impact monitoring.

The standard of Safe Practice is everywhere substituted by the vaguely defined notion of "Best Industry Practice" (which seems to mean the use of the best available technology that the industry can afford to employ.) The absence scientifically established baseline human health data, and assessment of the

potential risks to local residents occurred because unlike other species in the EIA, the science of potential human impacts is excluded from the assessments. As a result, although fracking has expanded over vast areas of human habitation, no scientific studies have yet to answer the most fundamental questions about the impact of this industry on humans.

1. What is a safe setback for humans from fracking installations (well pads, compressor stations, drying stations, silica storage sites, silica mining sites, pipelines, gas treatment plants etc)?
2. What scale of natural gas or oil development would make it impossible to achieve the water, soil and air emissions standards that are protective of the environment including human health and welfare?

The failure to ask or to answer these questions before any development was allowed to proceed has had profound negative social, psychological and physical health effects on the populations living in shale plays everywhere and the regulatory responses to these problems have usually been at best, ineffectual and, in most cases, scandalous

Please see the **“Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction),**
Concerned Health Professionals of NY, Physicians for Social Responsibility. This compendium is maintained and updated regularly and is available online. It

documents a litany of unpredicted negative effects of the unfettered development of this industry.

I also urge the panelists to read the following 2 documents which are easily accessible online. :

“Public Herald 30 month Report Finds DEP Fracking Complaint Investigations Are ‘Cooked’ and Shredded.”

This document describes the difficulty experienced by the Public Herald in Pennsylvania to obtain what were supposed to be public records and the serial and seemingly deliberate mishandling of water testing complaints they describe.

“Pennsylvania Department of Health, (PEDOH) Natural Drilling Log”

This document illustrates perfectly the inability of the Department of Health Of Pennsylvania (PADOH) to respond pro-actively to expressions of concern, evidence of toxic exposures and health impacts in Shale areas. The Pennsylvania Department of Health (PADOH), like government public health bodies everywhere, were outside the Environmental Impact Assessment loop. Regulation development and environmental monitoring programs were designed without baseline information of the health patterns of the population that would be impacted. This would make it extremely difficult to establish relevant changes in health outcomes. The monitoring protocols were also not designed to capture human toxic exposures nor were they informed by expert knowledge of human physiological responses to all the relevant toxins. This made it impossible for the PADOH to impact regulatory decisions that could provide increased protections to local residents. The staff of

the PADOH were essentially limited to referring complainants to the Pennsylvania Department of Environmental Protection (PADEP) for air or water monitoring or interpreting the results of those tests when (or if) the residents received them.

The people of Pennsylvania eventually realized that the PADOH could not help them and formed partnerships with independent academics and community organizations to begin to fill the scientific void that existed in the understanding of the human health and psychological impacts of unconventional oil and gas.

Environmental Impact Assessment Issues in Canada

You will no doubt ask why I want you to read about regulatory problems in the US. I chose to talk about Pennsylvania because these records are actually publically available and the problems are so flagrant. How are they relevant to Canada's Environmental Impact Assessment policies?

The Environmental Impact Assessment models in both countries appear to be very similar. All large development projects in both countries share the same potential for harm to populations living in proximity to their installations. I draw your attention to published reports on air quality problems in Alberta that I was able to find, and how the issue of air quality has impacted the First Nation Community of Fort Mckay.

I assume that Environmental Impact Assessments of the oil sands or other oil development projects at the root all of these air quality problems were done. Did the EIA fail to properly assess the cumulative air quality risks? Did the subsequent regulations take adequate account of EIA risk assessments? Were the regulations adequately enforced? Or finally, has the scale and pace of oil development projects surpassed the level where air quality can be maintained at safe levels? Something has clearly failed.

“Air Quality in the Industrial Heartland of Alberta, Canada Potential Impacts on Human Health” , Simpson et al. Atmospheric Environment, 2013

<http://dx.doi.org/10.1016/j.atmosenv.2013.09.017>

“Oil sands operations as a large source of secondary organic Aerosols” John Liggio et al Nature 524, 91-94 (02 2016), doi: 10.1038/nature17646

“Cumulative Effects:

Concern of Fort Mckay regarding to the impacts of Emissions to Air from Industrial Development”

Prepared for the Fort Mckay Sustainability Department.

September 2012,

Lori Adamache Msc, Peng, David Spink, Msc, PEng

Alberta Government,

Fort Mckay First Nation and industry respond to air quality concerns.

Sept. 21, 2016

The issue of Air pollution has been of concern to the population of Fort Mckay for many years. In 2012, they commissioned a report looking at the predicted increases

of three different toxic chemicals emitted by oils sands activity in their region (Sulphur Dioxide, Nitrogen dioxide and Fine particles). The report made a series of recommendations:

1. **“Prevention and minimization of pollution**
2. Require use of relevant indicators to Fort Mckay, including Fort Mckay’s Air Quality law
3. Cumulative effects should evaluate change from pre-development, not just the increment due to new projects.
4. Monitoring and evaluating needs to be done in partnership with Fort Mckay
5. **Odour management strategy ... A regulatory mechanism is required to reduce odours not just monitor and report.”**

Four years later, the Province of Alberta published the following response to evidence of air quality problems in the Community of Fort Mckay following a study that examined:

- **“Complaint and investigation history in the region related to air quality and odours**
- Industry performance monitoring data and regulatory requirements
- Ambient air quality monitoring data, and
- **Air quality and odour thresholds.”**

At the end of this process, 17 different recommendations were made. The most significant (I assume because they took the trouble to list them in their media document) are the following:

- “Improving consistency in industrial and ambient air monitoring

- **Assessing long-term and cumulative health effects of emissions!**
- Developing a better understanding of the link between industry emissions and air quality and odours in Fort Mckay, and
- **Improving response and communication protocols for odour complaints between the AER, Health Canada, Alberta health Services, industry and the community of Fort Mckay.”**

At the end of the day, and after years of complaints and pleas for help, it appears that the people of Fort Mckay can now look forward to being studied to death. Reading the Government’s goals for the study that led to these recommendations, it’s difficult to understand what, if anything, the regulators have been doing to respond to Fort Mckay in the past four years. Please note that none of these recommendations declare an immediate expectation that oil sands emissions will be reduced to levels that ensure the safety of these people. Instead, the companies will be asked to confirm that they are employing “Best Practices”. If the companies operating in that region, are meeting all the “Best Practices” standards, can they then continue to poison the people of Fort Mckay?

The Government does propose to “Assess the Long-term and cumulative impacts of emissions”, but no attention is given to the short-term immediate impacts of emissions which can be a great source of suffering to the people of the community.

In 2015, Fort Mckay prepared a Position Paper commenting on the “Lower Athabasca Regional Plan”. The section “Air Quality Management Framework” (p.13, section 2.3.2) states: “Based on the WHO guidelines adverse effects would be expected at the level 3 trigger levels and in some cases between the level 2 or 3 trigger levels. As noted above in the comments” Current Framework, the level 3 trigger levels for NO3 is a **high-risk level** in terms of the Air Quality Health Index. Therefore while the approach for managing air quality in the AQMF has merit, **the limits and trigger levels are at adverse effects levels rather than before these levels are reached which is not protective of human health or the environment.”**

2.3.3 Management response/Actions, A list of actions given in the framework to respond to “each of the different exceedance levels ...”

2.3.4 “While these exceedance of regulated limits and the possible management actions listed in the AQMF are appropriate there is an issue of timeline and development logistics. **For example the exceedance of a limit or trigger level could take over a year to verify and then the development of an action plan another year or two....”**

Although this may be an appropriate response to investigate suspected regulatory failures, it is not an appropriate public health response to threats to human health, or of complaints of physical illness during an “Odour Event” or at any other time. It’s as though the regulations and their enforcement are disconnected from their purpose, which is to protect the people and other living beings.

There are therefore no mechanisms in place to ensure actions, in real time, that are protective of the people living in that community. This deplorable situation is not an exception to the rule; it is the rule.

I invite you to consider how different the experience of these people could have been if the risks to their health and welfare had actually been realistically assessed from the beginning, if a baseline health survey had been conducted, if continuous and appropriate health based air quality monitoring had occurred in their community and homes, if their health status had continued to be monitored, and if their safety had been aggressively protected as development projects were proposed and approved thereafter. At some point in this process could the unthinkable have happened: that a project would be refused because it posed too great a risk to the communities living nearby?

In 2012, Dr. Eilish Cleary, the Chief Medical Officer of Health of New Brunswick, presented a report to the Government of New Brunswick recommending actions that should be taken to assure the health and welfare of residents living in proximity to Shale Gas Development installations. She urged that the same attention be given to baseline Health surveys and ongoing Health monitoring as other environmental indicators. She also reminded Government of their obligation to observe the Precautionary Principle when human health and welfare are at risk.

“Chief Medical Officer of Health’s Recommendations Concerning Shale Gas

Development , www.gnb.ca/2012, ISBN978-1-55471-717-0

The recommendations in this report are easily transferable to other large-scale development projects. In her report Dr. Cleary addressed many of the issues that I discussed in this letter. She also prepared a design for a Health impact Assessment, which includes environmental impacts as well as other factors relevant to the human species.

Presentation to the Commission on Hydraulic fracturing : Health IMPACT ASSESSMENT

FOUND AT: <http://nbchf-prod.s3amazonaws.com/submissions/n1c3v4bcsor-d27440fe07d42cb2bcf7f59aab36b700.pdf>

An Environmental Impact Assessment model already exists and is being used by the International Council for Exploration of the Seas. This Assessment model gives equal weight in all geographic spatial planning to human cultural factors such as historic land usage, traditional and spiritual values, as well as all the issues related environmental safety and economic considerations. The following related document might be useful for you to see how the human factors of development can be considered;

“ICES International Council for the Exploration of the Sea, Sept. 2015

Report on the HZG/LOICZ/ICES Workshop: Mapping Cultural Dimensions of Marine Ecosystems Services (WKCES)

SCICOM Steering Group on Human Interactions on Ecosystems (SSGHIE:12)

17-21 June 2013, Geerstaacht, Germany

The purpose of the EIA is to attempt to predict, as accurately as possible, the impacts that any human activity will have on the all the living things (including I

hope human beings) dependent on that environment. When those predictions prove to be wrong, one question that arises is who did the EIA, and for who? In Canada, the EIA is entrusted to the companies who wish to develop whatever resource they are seeking. This policy gives the appearance of bias and may in fact lead to an underestimation of risk and an overestimation of the effectiveness of the proposed mitigations. I suggest that, in order to ensure a thorough and unbiased process, it is necessary that EIAs be conducted by scientists who are truly independent and free of economic and political pressure and influence. The public would be more likely to trust the EIA process if they could be sure of its integrity.

A more important question is when should the EIA be conducted? When a decision is made to allow a project to proceed before the Environmental and Health risks have been assessed, it is neither an informed nor a responsible decision. Political and financial imperatives can lead to premature assumptions about the safety of a project. The subsequent Environmental Impact Assessment of high risk projects can lead to regulations and proposed mitigations that can be far more harmful than decision makers anticipated. The Precautionary Principle, which is the standard that should apply when human welfare and health is involved, would dictate that the assessment should come before the decision.

Thank you for your attention to my concerns. I hope that these comments will help to improve ongoing EIA processes for the benefit of all Canadians.

Denise Melanson

Kent County Council of Canadians

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