

July 7, 2005

The Honourable Carolyn Bennett
Minister of State (Public Health)
Tunney's Pasture
Ottawa, ON K1A 0K9


Dear Minister Bennett:

Re: Response to Your February Letter re: Electro-Magnetic Fields

Thank you for your reply to my November 23, 2004 letter. It was encouraging to learn that Health Canada is actively conducting laboratory research on the health effects of extremely low frequency (ELF) electro-magnetic fields (EMFs), as well as continually monitoring world wide health effect studies. I was also glad to learn that the Federal Provincial Territorial Radiation Protection Committee (FPTRPC) has recently reviewed the research on EMF and effects on human health. However, after examining the FPTRPC's Overview in comparison with other international documents I was somewhat disappointed. I urge Health Canada to consider the following points before accepting the FPTRPC's recommendations.

1. When examining the epidemiological studies on childhood leukemia on page 113, the Overview concludes "All meta-analyses, except the random-effects model, detected a statistically significant association for childhood leukemia at the highest levels of exposure". The authors partially discount this finding because they propose that most Canadian children are not exposed to these high levels. However, I find this a dangerous oversimplification. For instance, levels at an elementary school in York Region have been measured as high as 18 mG with an average reading of 9.2 mG. These levels fall within the "highest levels of exposure" mentioned by the authors.
2. The chart on page 146 of the Overview clearly shows that all recent relevant genotoxic studies indicate a genotoxic mode of action for carcinogenesis from EMF exposure. The authors then argue that these studies represent exposures that are not consistent with environmental exposures and thus should have little direct relevance to policy decisions. However, the authors go on to make two other statements that refute this. Firstly, that "a linear dose response could be expected if magnetic fields were genotoxic" and secondly that certain genotoxic tests are "so new that not enough data has been accumulated to fully characterize their sensitivities and specificities". Given these two statements, is it not highly

possible, that if detectable genotoxic events occur at higher doses, then small genotoxic events are occurring at lower levels of exposure? We are simply incapable, at this time due to unknown test sensitivity to detect these abnormalities. It would follow that discounting the relevance to public health of a genotoxic mode of action on the grounds that it only occurs at high doses seems to “fly in the face” of the linearity implicit in the genotoxic model of carcinogenesis. Thus, the author’s decision to limit their review to genotoxic studies with large doses was perhaps short sighted as is their statement that “there is no evidence from *in vitro* studies that PFF is genotoxic”.

3. The Overview concludes that uncertainty remains regarding the association between ELF EMF exposure and brain cancer, adult leukemia, breast cancer and reproductive capacity. The Overview also cites uncertainties in the body of *in vivo* EMF literature. The scientific data simply do not allow one to draw conclusions either way on the association between ELF EMFs and health. The authors then use this uncertainty to recommend the adoption of the precautionary principle.

When combined with public opinion these three points strongly suggest the use of the precautionary principle (PP) when dealing with ELF EMF exposure. The FPTRPC appears to agree with this assessment in section 12.3 of their Overview and in point 7 of their Position Statement. Yet, when you compare the FPTRPC’s interpretation of the use of the PP to the WHO’s draft Framework to Develop Precautionary Measures in Areas of Scientific Uncertainty there are some stark contrasts. Most strikingly is the term “moderate measures” used by the FPTRPC to describe ongoing research, while the WHO lists research as one of the least involved measures (second only to “do nothing”) on a graduated list of seven precautionary measures; certainly not a middle or moderate measure.

Some would argue that monitoring research is not a measure or action at all and it certainly does nothing to lower the public’s exposure to ELF EMFs. The Overview authors claim they employed the Federal government’s “A Framework for the Application of Precaution in Science-based Decision Making about Risk” when they suggested that continuing scientific research meets the needs of the PP. However, this guideline clearly states that the adoption of precautionary measures should consider the severity of the risk and society’s chosen level of protection. It further states that “while judgments should be based on scientific evidence to the fullest extent, decision makers should also consider other factors such as societal values and willingness to accept risk and economic and international considerations”.

The message we are receiving from our residents is that society is concerned with the risk of ELF EMFs and would like a more active interpretation of the PP at the federal level. Considering the determined extent to which PP was addressed by the FPTRPC and on Health Canada’s “It’s Your Health Website” it would seem that the Federal government is also aware of the concerns of Canadian citizens on this issue.

This brings me to my last point. In your February letter you encouraged a discussion between regulators, electrical utilities and concerned citizens. While I whole heartedly support such discussions, I wish to draw your attention to a few examples of similar circumstances where said discussions have led to mutual agreements and more active precautionary measures.

- Hydro line upgrade in Tsawwassen BC:
http://www.trahvol.com/trahvol_documents.htm
- The Connecticut Siting Council: <http://www.ct.gov/csc/site/default.asp>
- Hydro line upgrades in California:
http://www.cpuc.ca.gov/WORD_PDF/FINAL_DECISION/39122.doc

These examples highlight both public concern over the level of acceptable risk and the range of options available to reduce EMF exposure. There are also several countries worldwide who have taken a more precautionary approach to EMFs. The WHO document lists several low cost measures (other than exposure standards) that could be endorsed by Health Canada and that would reduce public EMF exposure while further research is conducted.

In conclusion, I hope that you carefully consider the points mentioned above regarding the FPTRPC's Overview. I also urge you to revisit the Federal government's precautionary principle document and consider advocating that Canadians take prudent and cost-effective actions to reduce public EMF exposure, especially when young children are affected.

Sincerely,



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Commissioner of Health Services
and Medical Officer of Health