

Dear Mr. Clegg:

This is in response to your environmental petition No. 398-B of December 8, 2017, addressed to Ms. Julie Gelfand, Commissioner of the Environment and Sustainable Development (CESD).

In your petition, you raised concerns regarding the safety of radiofrequency devices.

I am pleased to provide you with the enclosed response to your questions. I understand that the Minister of Innovation, Science and Economic Development will be responding separately to the questions that fall within his purview.

I appreciate your interest in this important matter.

Yours sincerely,



The Honourable Ginette Petitpas Taylor, P.C., M.P.

Enclosure

c.c. The Honourable Navdeep Bains, P.C., M.P.  
Ms. Julie Gelfand, CESD

Canada 

**MINISTER OF HEALTH RESPONSE TO ENVIRONMENTAL PETITION NO.398-B**

3.

In its response to the original petition, Health Canada states *"Safety Code 6 provides very large margins of safety against the occurrence of all established adverse health effects associated with RF (radiofrequency) field exposure"*, which is a factor of 50 times for the general public. Given that the uncertainty factor for Atrazine in water is 1,000, the safety margin for pesticides can be 1,000 times in certain scenarios and the City of Toronto's Prudent Avoidance Policy for new telecommunications towers recommends that exposure to radiofrequency/microwave radiation for the general public be kept 100 times below Safety Code 6 levels, can Health Canada's limit of "50 times lower" be considered consistent with other precautionary safety margins?

Safety Code 6 specifies science-based recommended human exposure limits that are based upon the avoidance of established adverse health effects. While a few jurisdictions have applied more restrictive limits for RF field exposures within their individual public policy contexts, scientific evidence does not support the need for limits that are more restrictive than those currently specified in Safety Code 6.

A precautionary approach to decision-making emphasizes the need to take timely and appropriate preventative action, even in the absence of a full scientific demonstration of cause and effect. However, the precautionary principle is not a tool for risk assessment. Risk assessments consider all data available in the scientific literature and focus on effects which scientists consider most relevant for human health. Based on such an evaluation, the Department will take action as required. In the case of RF exposures, Health Canada does not consider additional precautionary measures are warranted.

4.

Given that in its response (to no. 398) Health Canada provided four references that are all out of date and that C4ST provided references and extracts of over 60 scientific peer-reviewed, research papers published in 2015 and up to April 2016 reporting potential harm at or below Safety Code 6 (2015) limits for the general public, would Health Canada provide a list of what it considers to be the ten (10) most credible primary (original) research publications with science based evidence published after 2011 to support its claim that *"the only scientifically established health impact [if SAR limits were marginally exceeded] would be warming of the skin and underlying tissue"*?

5.

- A. If Health Canada has a weight of evidence analysis, would it provide it now?
- B. If a full and complete weight of evidence analysis is not available as requested in 5A, would Health Canada provide 10 primary (original) studies that support Health Canada's position that there is no harm from RE radiation at non-thermal levels below Safety Code 6 limits?
- C. Can Health Canada provide a weight of evidence analysis for the studies in Question 5B above?
- D. If a full and complete weight of evidence analysis is not available as requested in 5A, would Health Canada provide one for the 10 peer-reviewed studies listed in Appendix A, published from 2012 to 2017 which provide evidence of harm from RE radiation such as brain tumours, breast cancer, sperm and DNA damage at exposures at non-thermal levels below Safety Code 6 limits?

Health Canada monitors the scientific literature related to RF fields on an ongoing basis and stands by its position that the recommended exposure limits in Safety Code 6 are protective of health.



Safety Code 6 is based upon credible scientific evidence and analysis. When conducting an evaluation of the scientific literature, the Department gathers, assesses, and integrates multiple sources of peer reviewed scientific evidence into an overall conclusion; an approach that is consistent with international practices.

The weight of evidence analysis conducted by Health Canada considers all the available peer reviewed literature within scope, as opposed to only a small number of studies which would inherently bias the outcome. Such a practice would not be considered rigorous or scientifically sound.

While Safety Code 6 (2015) references a number of large international reviews of the scientific literature, the Code is intended as an exposure guideline and not a scientific review article and accordingly, most individual scientific studies are not referenced in the Code. However, this does not mean that Health Canada does not consider all relevant scientific information when deriving the science-based exposure limits in Safety Code 6.

Health Canada has been taking part in the International EMF Project, coordinated by the World Health Organization (WHO). The goals of this project are to assess scientific evidence of possible health effects from exposure to EMFs and to characterize any associated health risks to humans. The WHO is coordinating an updated monograph on the potential health effects from RF field exposure. Health Canada is participating in this exercise, allowing the Department to leverage this large-scale and highly resourced international effort. Updates on the development of the WHO monograph will be made available on the WHO EMF Project website: <http://www.who.int/peh-emf/project/en/>.

If new scientific evidence were to demonstrate that exposure to RF energy below levels found in Safety Code 6 is a health concern, Health Canada would take appropriate action to help protect the health and safety of Canadians.

6.

**What “weight” considerations for potential bias, as examined in Huss, A., et al. 2007, “Source of Funding and Results of Studies of Health Effects of Mobile Phone Use: Systematic Review of Experimental Studies” published in *Environmental Health Perspectives*, 115(1), 1—4, have been applied to the weight of evidence analyses by Health Canada?**

Health Canada assesses the merit of individual research studies based upon a variety of quality factors, including but not limited to: inclusion of proper controls, dosimetry, temperature monitoring/control, statistical approaches, blinding of samples during analysis.

Health Canada’s approach takes into account both the quantity of studies on a particular endpoint (whether adverse or no effect), and more importantly, the quality of those studies. Poorly conducted studies (e.g., an inadequate exposure evaluation, a lack of appropriate control samples or an inadequate statistical analysis) receive relatively little weight, while properly conducted studies (e.g., with all controls included, appropriate statistics and a complete exposure evaluation) receive more weight.

Health Canada also takes note of the funding source for individual research studies.



7.

How does Health Canada reconcile its position that the studies that have reported biological effects of radiofrequency radiation that are below the limits in Safety Code 6, at non-thermal levels *"are in the minority, are very far from conclusive, and do not represent the prevailing line of scientific evidence in this area"* with the viewpoints of reputable scientists from respected institutions such as the universities of Toronto, Harvard, Washington and Yale as well as the 230 scientists from 41 nations who are specialists in the biological effects of radiofrequency radiation at non-thermal levels and who signed the International EMF Scientist Appeal stating that *"guidelines and regulatory standards [need to] be strengthened"*?

8.

- A. What was the evidence that proved conclusively that cigarette smoking causes lung cancer?
- B. What peer-reviewed studies provided the 'tipping point' for Health Canada to insist on precautionary warnings e.g. for labeling on cigarette packages, about the potential harm of smoking tobacco?
- C. How is that threshold different from the peer reviewed scientific evidence available regarding the harm from RF wireless radiation today?

As in many areas of science, it is possible to find differing scientific results and/or opinions. It is important to note that a biological response (as reported in some studies) does not necessarily translate to an adverse health outcome in humans. Health Canada's recommended human exposure limits are based upon the avoidance of established adverse health outcomes in humans. Canada's limits are consistent with the science-based standards used in other parts of the world (e.g., the United States, the European Union, Japan, Australia and New Zealand) and provide protection against all known adverse health effects from RF energy.

The International Agency for Research on Cancer (IARC) has classified tobacco smoke and smoking as "carcinogenic to humans" (Class 1), as there is sufficient evidence in humans and animals of a causal relationship between smoking and cancer. Radiofrequency fields are classified by IARC as "possibly carcinogenic to humans" (Class 2B), based upon limited evidence in humans of an increased risk for glioma and acoustic neuroma among users of wireless telephones but chance, bias or confounding could not be ruled out with reasonable confidence.

10.

- A. Given that neither the *"Safety Code 6"* document, nor the *"Safety Code 6 (2015) — Rationale"* document provide a complete and transparent analyses or summary of the scientific evidence on non-thermal effects below Safety Code 6 limits as outlined in Q4, on what basis is Health Canada making the statement the process it used to revise Safety Code 6 was *"comprehensive, inclusive and transparent"*?
- B. Why is the *"Safety Code 6 (2015) - Rationale"* document only available on request, and not readily available on Health Canada's website?
- C. When will Health Canada follow the international best practices of the scientific review process and be truly transparent by making this information available to the public, on line or in peer-reviewed journals?



Health Canada's latest process to revise Safety Code 6 was the most comprehensive, inclusive and transparent process to date. The proposed Safety Code 6 underwent an extensive independent peer review by an Expert Panel of the Royal Society of Canada; a process which further considered stakeholder feedback and resulted in changes to the Code. Health Canada furthermore published its proposed 2014 revisions to Safety Code 6 for public consultation between May 16 and July 15, 2014 and welcomed feedback from interested Canadians and stakeholders. The revised Safety Code 6, which was published in 2015, as well as the summary of consultation feedback is available on Health Canada's website:

<https://www.canada.ca/en/health-canada/services/environmental-workplace-health/consultations/2015-revisions-safety-code-6-summary-consultation-feedback.html>

The rationale document is an internal Health Canada document written to support proposed changes to Safety Code 6. This document was shared with the Expert Panel of the RSC in 2013, revised before the consultative version of Safety Code 6 was released in 2014, and subsequently revised upon final publication of Safety Code 6 (2015). The document is available to all Canadians upon request. Due to the highly technical nature of the rationale document, the decision was made to continue offering the document upon request; a practice consistent with current policy to streamline and consolidate the amount of web content to focus on information of the greatest interest to Canadians. Please note that Health Canada has distributed this document in response to several correspondences, as well as a previous environmental petition (no.365).

There has been significant ongoing international work on RF EMF and its potential impact on health. Among these, the WHO has convened a working group to conduct a thorough review of all of the latest scientific literature on this topic and will publish an authoritative review on this issue. As stated earlier, Safety Code 6 specifies recommended human exposure limits and was not intended to be a scientific review article, thus Safety Code 6 references a number of large international reviews of the scientific literature, which themselves have been subject to peer review procedures.