

December 20, 2011

Mayor and Council, City of Richmond
c/o David Weber,
Director, City Clerk's Office
City of Richmond
6911 No. # Road
Richmond, BC V6Y 2C1

Dear Mayor and Council:

This letter is in response to Council's resolution made on November 14, 2011, requesting the Medical Health Officer to "conduct an investigation as to whether smart meters pose a health hazard". We wish to direct Council also to an earlier response made by the Medical Health Officer following Council resolution R11/17-7 regarding the same issue.

The BC Public Health Act defines a health hazard as:

- a) a condition, a thing or an activity that
 - (i) endangers, or is likely to endanger, public health, or
 - (ii) interferes, or is likely to interfere, with the suppression of infectious agents or hazardous agents, or
- (b) a prescribed condition, thing or activity, including a prescribed condition, thing or activity that
 - (i) is associated with injury or illness, or
 - (ii) fails to meet a prescribed standard in relation to health, injury or illness

The "Smart Meters" installed and used by BC Hydro are not health hazards as defined by the BC Public Health Act. The Provincial Health Officer has stated that given the current scientific evidence, exposure to the radio-frequency electromagnetic fields from Smart Meters "do not constitute a threat to the health of the public" (<http://www.health.gov.bc.ca/pho/issues.html>). As well, the transmitters in Smart Meters produce electromagnetic fields at levels significantly lower than the maximum allowed for the Canadian public under Health Canada's Safety Code 6.

The transmitters used in these meters are similar to a cell phone in power **but** they are active only for a very short duration at a time. BC Hydro posted on its website that total transmission time would average 1 minute a day for a Smart Meter. In fact, the independent engineering firm recently engaged by BC Hydro reports that a single meter is actively transmitting for a total of less than 2 seconds a day under conditions simulating normal use (0.904 sec on test day 1, and 1.83 sec on test day 2). For a bank of 10 meters under the same conditions, the total active transmission time is around 10 seconds a day (10.150 sec on test day 1 and 9.606 sec on test day 2).

In terms of power density, Safety Code 6 requires it to be less than 600 microwatts per square centimeter for publicly accessible areas, at the radio-frequency used by the Smart Meters. The independent consultant found the average power density to be 0.3795% of Safety Code 6 (or 2.3 microwatts per square centimeter) for a single Smart Meter, with a range between 0.034% and 0.916% of Safety Code 6. For a bank of 10 Smart Meters, the average power density was found to be 0.4507% of Safety Code 6 (or 2.7 microwatts per square centimeter), with a range from 0.0015% to 1.6835% of Safety Code 6. Even the highest power density value recorded from a bank of 10 meters is more than 50 times less than the Safety Code 6 limit, while the average power density for both single and a 10 meter bank are more than 200 times less than Safety Code 6. Moreover, the power density recorded for a 10 meter bank is not 10 times that of a single meter. The average power density for the 10 meter bank is about 1.2 times that of a single meter, while the maximum value from the 10 meter bank is slightly less than twice the maximum value recorded from the single meter set up. These measurements support the information provided on BC Hydro's website that BC Hydro expects the power density from meter banks to be about twice compared to a single meter.

Information obtained from BC Hydro by the Medical Health Officer indicates that there are two types of transmissions from Smart Meters. The first type is for network coordination (for example, power outage detection) – this occurs every 30 minutes. The second type of transmission is to convey consumption data – this occurs three times a day. The independent consultant notes that the actual incremental contribution by Smart Meters, whether singly or in a bank, above the radio-frequency background in everyday environment is barely measureable, and that in calculating the power densities the consultant assumed that everything measured were from the Smart Meters. Therefore, in reality, the radio-frequency fields generated by Smart Meters are very likely to be less in power density than what the consultant reported. The independent consultant's reports have been posted recently by BC Hydro on its website:

http://www.bchydro.com/etc/medialib/internet/documents/smi/SMI_SingleSmartMeter.Par.0001.File.SMI-SingleSmartMeter-2011-Oct-11.pdf

http://www.bchydro.com/etc/medialib/internet/documents/smi/SMI_MeterBank.Par.0001.File.SMI-MeterBank-2011-Oct-11.pdf

Delegations to Council have suggested that measurements by the BC Centre for Disease Control contradict BC Hydro's public statements. Most of the measurements performed by BCCDC are reported as below the measurement limit of the instrument used. Measurable levels are found by BCCDC only when the instrument probe was *in actual contact* with certain areas of the Smart Meter casing, or in close proximity to the collector antenna, equivalent to holding a cell phone close to the head. The levels that are measurable by the BCCDC instrument even in these circumstances were at the lower end of the range of radio-frequency field strengths typical of what people would experience from cell phones when cell phones are held to the ear. In addition, it is highly unlikely for the public to be close to the collector antennae since they are located on top of utility poles, 18 – 24 feet above ground. Moreover, because it was performed with the Smart Meter and the collector on a continuous transmitting mode, which is not how the Smart Meters and collectors will function in real life, the BCCDC report provides no information on exposure when radio transmission is intermittent. As well, the instrument used by BCCDC was not very sensitive and had a high detection limit. Therefore, the BCCDC measurements do not contradict the information provided by BC Hydro.

Delegations also were concerned about the discrepancies in measurements between the independent consultant and other available reports such as from the Electrical Power Research Institute (EPRI). A comparison of the model numbers shows that the Smart Meters used in the EPRI report and the ones used by BC Hydro are different. Information from BC Hydro indicates that the Smart Meters being introduced by BC Hydro is a newer generation meter. Newer technology has allowed transmission time to be shortened and therefore less overall power density. It should also be noted that the measurements in the EPRI report, referred to on the BC

Hydro website, are from meters transmitting continuously, which is not how the Smart Meters function in real life. In contrast, the independent consultant performed his measurements in a testing environment that "has been constructed to be as realistic a representation of usage environment as possible".

Regarding cancer risk, the recent decision by the WHO to classify radio frequency electromagnetic field as possibly carcinogenic (Class 2B) is based on epidemiological uncertainties surrounding the long term and heavy use of cell phones held to the ear. This is clearly not the case with respect to exposure from Smart Meters or the collectors. Information regarding the WHO decision is available online:

http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf

With regard to the many other health concerns raised by public delegations to Council at the October 14, November 7 and November 14 Council meetings, they are not new. Indeed, these concerns with respect to radio frequency radiation have been raised and studied for many years. Scientific evidence weighed all together has not been able to substantiate the concerns. A public delegation on October 14 provided a quote from the WHO regarding Electromagnetic Hypersensitivity (EHS). Because the quote is only partial, the reader may conclude that the WHO believes EHS is caused by radio-frequency electromagnetic fields. The following is found in the conclusion section of the WHO fact sheet on EHS: "EHS is characterized by a variety of non - specific symptoms that differ from individual to individual. The symptoms are certainly real and can vary widely in their severity. Whatever its cause, EHS can be a disabling problem for the affected individual. EHS has no clear diagnostic criteria and there is no scientific basis to link EHS symptoms to EMF exposure. Further, EHS is not a medical diagnosis, nor is it clear that it represents a single medical problem".

<http://www.who.int/mediacentre/factsheets/fs296/en/index.html> .

In conclusion, the public may be opposed to the BC Hydro Smart Meter Program for a number of reasons. That these Smart Meters are health hazards should not be one of them. These devices are active only for an extremely short amount of time each day. They add so little to the existing background radio-frequency fields that it is very difficult to separate them apart from our everyday environment. We recognize that some may disagree with our assessment. We respectfully differ. We are confident however that our assessment is in agreement with the overall scientific understanding regarding radio frequency electromagnetic fields.

Respectfully,



Dr. James Lu
Medical Health Officer – Richmond
Vancouver Coastal Health



Dr. Patricia Daly
Chief Medical Health Officer
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