

PUC Docket 2011-262 Friedman on Remand
Intervener DW et al Evidence 20 Evidence and Testimony from Other Cases
Court Cases and Public Utilities Commission Cases

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Evidence 20 Evidence and Testimony from Other Cases, Court Cases and PUC

This category contains some documents from the original Smart Meter Opt Out Case at the Maine PUC, Elisa Boxer Cook et al 2010-0345, and the consolidated case numbers 2010-289, 2010-398, 2010-400 and 2011-085. It also contains expert testimony from an Oregon WiFi case that is currently proceeding in the Oregon courts. In that case, experts testified regarding RF radiation in the same frequency as our smart meters, and, if money were no object, these same experts could have been brought to Maine to testify by the OPA, the PUC or Interveners. Technology also allows us to Skype, and in this hearing, we should be doing so. This category also contains expert testimony from the Hydro Quebec proceedings on Smart Meters, and an Expert Witness Statement to Standing Committee off the Canadian House of Commons. In this way, the Interveners are presenting additional expert testimony that was not provided by the Complainant or PAO regarding adverse health effects caused by non-thermal radiation. These experts strengthen Intervener's submittals of peer-reviewed studies, as they attest to their value in determining the lack of safety of smart meters that emit at similar frequencies.

In the references below, the author is listed first. The title of the document as the title was entered into the docket is underlined. The actual/real document title is in brackets and emboldened and italicized.

20.01 Suzanne Foley-Ferguson et al, ***Letter to Commissioners Urging No Cost Opt Outs***, MPUC Consolidated Docket 2010-345 et al; May 16, 2011. This document argues that any cost or fee for an opt out is discriminatory, unfair and unjust. Complainants point out that CMP identified health and other " *Complaints to the Commission*" as a High Risk in their Internal Risk Assessment of the approved AMI system. It argues that any cost to opt out of a device that even has the slightest possibility of causing harm to human health is discriminatory. Also discusses overstepping of easement.

[Filed in Docket 03/04/13; Item #375]

20.02 Marcinowski, Frank, Director, Radiation Protection Division, EPA *ExhibitC_SAFFcasefile* ***Environmental Protection Agency [Letter to Janet Newton March 8, 2002]*** Summary: This document is a true copy of a response letter 20.03.

[Filed in Docket 03/04/13; Item #375]

20.03 Marcinowski, Frank, Director, Radiation Protection Division, EPA *ExhibitCeparesponseSAFFcasefile* ***[Environmental Protection Agency Letter to Janet Newton March 8, 2002]*** This document combines two letters of the March 8, 2002 and July 16, 2002 in which the Environmental Protection Agency (EPA) replies to Janet Newton regarding the FCC standards. It states that FCC's standards do not apply to chronic, non-thermal exposure situations and that it is considered to be protective of

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effects arising from a thermal mechanism but not from all possible mechanisms. The EPA states that “*Therefore, the generalization by many that the guidelines protect human beings from harm by any or all mechanisms is not justified*”. It discusses the adverse effect level of 4W/kg, and points out that the FCC does not claim that their exposure guidelines provide protection for exposures to which the 4W/kg SAR basis does not apply (chronic and non-thermal). This letter was accompanied by a letter written in June of 1999 to Richard Tell of the Risk Assessment Work Group, in which the members of the RFIAWG identified certain issues that they had determined needed to be addressed in order to provide a strong and credible rationale to support RF guidelines. (See 20.04)

[Filed in Docket 03/04/13; Item #375]

20.04 Lotz, Gregory, **Department of Health and Human Services, [Gregory Lotz, PhD, Chief, Physical Agents Effects Branch, Division of Biomedical and Behavioral Science, National Institute for Occupational Safety and Health, DHHS, June 17, 1999 DHHS Letter to Richard Tell Chair, IEEE SCC28 (SC4) Risk Assessment Work Group ExhibitD-DHHSlettTotell**

This letter outlines the RF Guideline Issues identified by members of the federal RF Interagency Work Group in June of 1999. The RFIAWG members believe that FCC needs to address all of these issues to provide credible rationale for FCC guidelines. Members and their organizations: Robert Cleveland, Senior Scientist, Federal Communications Commission (FCC), Larry Cress, US Food and Drug Administration (FDA), DCRH, Radiation Biology Branch, Robert A. Curtis, OSHA, US Department of Labor, Occupational Safety and Health Administration, Joseph A. Elder, US Environmental Protection Agency (EPA), Norbert N. Hankin, US EPA, Janet H. Healer, NTIA, Department of Commerce, Gregory W. Lotz, NIOSA, Russell D. Owen, US FDA, Chief, Radiation Biology Branch.

The seven-page letter outlines these issues that have yet to be addressed:

1. Biological basis for local SAR limit / dosimetry may not be applicable
2. Selection of an adverse effect level /
3. Addressing acute versus chronic exposures
4. One tier versus two tier guidelines
5. Controlled versus uncontrolled exposures / specific populations
6. Uncertainty factors/ how or if... extrapolate acute to chronic / variations among individuals/ inability for any single study to adequately address all possible adverse outcomes.
7. Intensity or frequency modulated (pulsed)
8. Time averaging / applicability to prolonged or chronic exposures?
9. Lack of peak limits for induced and contact current
10. Transient discharges
11. Limits for exposure at microwave frequencies/ issue of continuous exposure
12. Replication / Validation of studies/ definition should not be so restrictive to disallow reports that are valid but not exact replication of procedures or results.
13. Documentation of the Literature review process.

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14. Compatibility of RFR guidelines
[Filed in Docket 03/04/13; Item #375]

20.06a. Suzanne Foley-Ferguson et al, ***Exhibit A; Foley-Ferguson Letter To Dr. Dora Mills, Director of Maine Center for Disease Control (MCDC) and Prevention (MCDC)***. MPUC Docket 2010-345 & 398; November 11, 2010. This letter questions the thoroughness of the review by the Maine CDC because the conclusion of the report does not follow from the data. The MCDC admitted that it was not a comprehensive review, and they only reviewed the data for approximately three weeks. Dr. Bailey testified in this docket after questioning by Foley-Ferguson that it would be difficult to do a thorough review in that timeframe. The letter points out another review that lists the same studies but comes to a very different conclusion. (Misabeled as Evidence 11 should be 20)
[Filed in Docket 03/04/13; Item #375]

20.06b. Havas, Magda, ***Addendum A; Declaration of Expert Witness Dr. Magda Havas, in Portland Division, AHM, by and through her Guardian ad litem and father, David Mark Morrison versus Portland Public Schools***, Civil Action No. 3:aa-cv-00739-MO; U.S. District Court of Oregon, December 2011. This document from a court case in Oregon outlines the studies that Dr. Havas refers to in her expert testimony regarding RF radiation in similar frequencies as the Maine smart meters. She separates them into seven categories. The Interveners in the Maine PUC case, Friedman et al 2011-00262 present this as evidence to strengthen our presentation of studies in our other categories. We have uploaded many of the studies reviewed by Dr. Havas, however, this is an expert testifying that these are valid and good studies, not Interveners in this case simply stating it is so. She presents in this addendum some other studies that are also relevant to this case. [Copy filed in Docket]

20.06c. Havas, Magda, ***Addendum C; Declaration of Expert Witness Dr. Magda Havas, in Portland Division, AHM, by and through her Guardian ad litem and father, David Mark Morrison versus Portland Public Schools***, Civil Action No. 3:aa-cv-00739-MO; U.S. District Court of Oregon, December 2011. This document is relevant because Dr. Havas presents summaries of some “key” International Appeals on RF radiation based on current data. Interveners have listed and presented internet links to the full appeals in another category, but did not provide summaries of them. This seven-page addendum summarizes some of them for the Maine PUC in order for the MPUC to understand the relevance of the documents. [Copy filed in Docket]

20.07 Suzanne Foley-Ferguson et al, ***Exhibit B; Foley-Ferguson Letter to Maine PUC RE: Precautionary Principle***, MPUC Docket 2010-345 & 398; November 17, 2010. This letter explains the elements of the Precautionary Principle, which was, at that time found as the very first link on the Maine.gov site under cell phone information. Foley-Ferguson points out that it is important for the PUC to work under that principle when evaluating its’ decision to use wireless smart meters. Foley-Ferguson points out that new

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technology requires a paradigm shift in decision making principles due to the fact that often this technology is not pre-tested for safety. Precaution is required to prevent irreversible harm such as genetic damage from RF radiation in the population. The letter pulls the quotes from the Maine.gov website. It is presented as evidence that governmental commissions in Maine are allowed to determine when it is necessary to use the Precautionary Principle to protect the public. When absolute proof is not a given, and since the PUC “must ensure” safe utility service, then by necessity they need to use this principle. (Mislabelled as Evidence 11 should be 20)

[Filed in Docket 03/04/13; Item #375]

20.08 Suzanne Foley-Ferguson et al, ***Motion To Reconsider Order for Consolidated Cases; Order Part I & Part II; June 2011***, MPUC Docket 2010-345 & 398; July 12, 2011. This is the consolidated complainants motion to the Maine PUC to reconsider the Maine Opt Out Program with its initial charge and ongoing monthly charges. It notes that there is new information because the WHO reclassified RF radiation as a class 2B carcinogen after the deadlines for submission. The motion also argues that the PUC failed to address health effects and the adverse RF radiation effects created by meters other than those on ones own home. Complainants point to the Commission failing to address the legal issues surrounding CMP’s use of ones property to transmit other peoples data resulting in placing an antenna on someone’s home without permission (taking?) and / or charging them for not allowing their home to have the meter attached. It also argues that the initial opt out cost for Repeaters that may or may not even be purchased by CMP (per their statements), but will be paid for by opt out customers, is discriminatory. It also argues that requiring individuals to pay to maintain their long term health or short-term health (pacemakers, DBS) is also a discriminatory practice. Finally, the complainants argue that the opt out program is violating the Terms and Conditions of the easement and service. (Mislabelled as Evidence 11 should be 20)

[Filed in Docket 03/04/13; Item #375]

20.09 Suzanne Foley-Ferguson et al, ***Response to CMP’s Response to Reconsideration Request***, MPUC Docket 2010-345 & 398; August 4, 2011. These comments are pulled from the original opt out case to be included as evidence in this Docket. The letter pulls the quote from the Commission’s Order regarding their omission of determination of safety. The letter argued that one commissioner does have the knowledge to review the literature. Complainants also argued that the number of repeaters should be reconciled with actual numbers, and that the commission should re-visit wired meters. It says that the WHO’s classification and the fact that the EPA wanted to list RF radiation as a “probable carcinogen” in 1993 was “new” information to the docket. (Mislabelled as Evidence 11 should be 20)

[Filed in Docket 03/04/13; Item #375]

20.10 Suzanne Foley-Ferguson et al, ***Complaint to MPUC re: CMP AMI System***; MPUC Docket 2010-345; December 17, 2010. This complaint discusses FCC standards. It asks

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the Maine PUC to evaluate the health risks of wireless technology and the benefits of implementing alternatives to wireless AMI. Complainants allege that the original AMI proceedings did not fully evaluate all scenarios in light of possible health effects. This complaint specifically pushed for a wired alternative. It was consolidated with Boxer Cook and others 2010-345. The complainants argued for non-wireless meters in the form of PLC or Fiber Optic, and made the point that every Commission decision made at the conclusion of an adjudicatory proceeding shall include “findings of fact sufficient to apprise the parties and any interested member of the public of the basis for the decision.”(Commission Rules) However, no findings of facts regarding health or hardwiring were reported after original AMI hearing. (In this docket, this was mislabeled, as Evidence 11 should be 20)

[Filed in Docket 03/04/13; Item #375]

20.11 Arthur Fitchenberg & Alan Golden testimony; *in Federal Communications Commission, In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, ET-Docket No. 93-62 and Report and Order FCC 96-326, Washington, D.C. 20554. This document is a combination of more than one letter. It includes a letter from Alan Golden, of Seattle Washington to the FCC opposing their rules. The letter attaches documents the FCC Docket (93-62) in the matter that included evaluating changes in the rules for the FCC in 1996 at the time when the current FCC standards were being considered. Mr. Golden points out a number of things including: Section 253 of the Telecommunications Act of 1996 Congress explicitly grants states authority to assure public safety - which includes jurisdiction to set state tort liability and share with the Commission other authority as long as complying with state law would make it impossible to also comply with Commission rules. This document also includes a letter from the EPA to David Fichtenberg in October of 1996 pointing out that the FCC does not claim that their new exposure guidelines provide protection for effects to which the 4W/kg SAR basis does not apply. When they developed their standards, they felt there was sufficient information on thermal exposure effects to develop a base standard, but they wanted more on non-thermal before setting a guideline. The EPA states, “*the effects information is not yet sufficient to be used to develop exposure criteria to protect the public against adverse human health effects*”; thus none were developed. EPA continues, “*The thesis that the 1992 ANSI/IEEE recommendations are protective of all mechanisms of interaction is unwarranted because the adverse effects level in the 1992 ANSI/IEEE standards are based on a thermal effect*”. (Mislabeled as Evidence 11 should be 20)

[Filed in Docket 03/04/13; Item #380]

20.12 Trower, Barry, *Amended Declaration of Expert Witness Barrie Trower, in Portland Division, AHM, by and through her Guardian ad litem and father, David Mark Morrison versus Portland Public Schools*, Civil Action No. 3:aa-cv-00739-MO; U.S. District Court of Oregon, December 2011. This document is the expert witness

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testimony of Barry Trower regarding microwaves in a case in Oregon. He explains that knowledge of microwave sickness, which is the same as EHS, was first reported in the 1930's. He cites many early studies on microwaves and health effects including the US Naval document already uploaded by Interveners, and John R. Goldsmith's study of the US Embassy in Russia. He notes that microwave illness / EHS was "well documented" by 1997 with over 100 other documents. He gives the review reference. As an expert, Mr. Trower substantiates evidence provided by the Interveners to this docket.

(Misabeled as Evidence 11 should be 20)

[Filed in Docket 03/04/13; Item #380]

20.13 Trower, Barry, *Addendum A; Declaration of Expert Witness Barrie Trower, in Portland Division, AHM, by and through her Guardian ad litem and father, David Mark Morrison versus Portland Public Schools*, Civil Action No. 3:aa-cv-00739-MO; U.S. District Court of Oregon, December 2011. This document is a drawing of the irreversible damage that is created by MW / RF radiation. Mr. Trower makes the point that genetic damage to female children's ovaries could cause multi-generational irreversible damage due to the fact that women have all of their "eggs" at birth.

(Misabeled as Evidence 11 should be 20)

[Filed in Docket 03/04/13; Item #380]

20.14 Havas, Magda, *Declaration of Expert Witness Dr. Magda Havas in Portland Division, AHM, by and through her Guardian ad litem and father, David Mark Morrison versus Portland Public Schools*, Civil Action No. 3:aa-cv-00739-MO; U.S. District Court of Oregon, December 2011. This document supports the evidence presented by Interveners in this case by presenting testimony from an expert that agrees with Interveners lay testimonies (not yet filed) and evidence uploaded in the form of peer reviewed journals and other reports that low level, chronic RF radiations, similar to smart meter emissions can cause adverse health effects. Dr. Havas includes her CV and references in this declaration. (Misabeled as Evidence 11 should be 20)

[Filed in Docket 03/04/13; Item #380]

20.15 Havas, Magda, *Addendum B to Declaration of Expert Witness Dr. Magda Havas, in Portland Division, AHM, by and through her Guardian ad litem and father, David Mark Morrison versus Portland Public Schools*, Civil Action No. 3:aa-cv-00739-MO; U.S. District Court of Oregon, December 2011. The signatures of these doctors and employees of Boston Medical Center are of significance to this case because the petition substantiates the concern of medical professionals regarding ubiquitous recurring microwave exposures and the "biological plausibility of harm". The petition reads that these doctors want to avert harmful public exposure to pulsed microwave transmissions. In the petition, Boston public health physicians and scientists called for a "halt to the pulsed microwave radiation based cell phone infrastructure. Nearly one hundred doctors and scientists sign the petition. The petition reads in part, "**Due to the plausibility of negative health impacts, particularly to the human nervous system, as well as**

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anecdotal evidence from such exposures in cities where transmission has already been implemented and voluminous medical studies indicating human and ecological harm from microwaves, we urge the suspension” ...of the implementation of putting cell towers up. The petition supports that there is reason to be concerned about long term exposure to low-level RF. It supports Interveners’ testimony from physician experts. (Misabeled as Evidence 11 should be 20)

[Filed in Docket 03/04/13; Item #380]

20.16 Havas, Magda, *Addendum D to Declaration of Expert Witness Dr. Magda Havas, in Portland Division, AHM, by and through her Guardian ad litem and father, David Mark Morrison versus Portland Public Schools, Civil Action No. 3:aa-cv-00739-MO*. U.S. District Court of Oregon, December, 2011. This is Dr. Havas presentation to the Court in Oregon regarding 2.4GHz Wifi. It is a PowerPoint pdf that includes diagrams and explanations of some specific studies. It supports Interveners evidence that pulsed RF and constant exposure to RF can cause health effects. (Misabeled as Evidence 11 should be 20)

[Filed in Docket 03/04/13; Item #380]

20.17 Carpenter, David, *Declaration of David Carpenter in Portland Division, AHM, by and through her Guardian ad litem and father, David Mark Morrison versus Portland Public Schools, Civil Action No. 3:aa-cv-00739-MO*. U.S. District Court of Oregon, December, 2011. Dr. Carpenter’s testimony in Oregon strengthens Intervener’s testimony and evidence in this case because his opinions, as an expert, coincide with Interveners, and he specifically discusses some of the same studies presented by Interveners. He also discusses FCC standards and standard setting and his CV is included. (Misabeled as Evidence 11 should be 20)

[Filed in Docket 03/04/13; Item #382]

20.18 Dr. David Carpenter Testimony, in *Quebec Energy Board - Docket no. R-3770-2011- Authorization of an Investment by Hydro-Quebec Distribution Advanced Metering Project Phase 1; Referred to in Section 41 of Dr. Carpenter’s Expert Report Cellular and animal studies on of cancer, genotoxicity, neurotoxicity and other health outcomes from RF/MS radiation*, Province of Quebec, District of Montreal, Canada; C-SE-AQLPA-0072, SE-AQLPA-7, Filed May 15, 2012. Dr. Carpenter lists the studies he cites as evidence of adverse health effects of RF/MW radiation. Dr. Carpenter explains that these studies explain the mechanisms of interaction between RF/MW radiation and biologic systems at the cellular level and include: cell membrane recognition process, signal transduction and heat-shock protein release, lipid peroxidation, free radical damage, mRNA and transcription, epigenetic changes, and micronuclei formation, DNA repair disruption, immune response suppression. It is the Interveners’ intent that all seven of the cited studies and full copies, be included as part of this MPUC docket (Sinha, 2008; Nittby H, 2008; Kimmel S; Panagopoulos, 2010; Everaert, 2007; Magras, 1997; Balmori,2009) along with this Expert Report. [Copy filed in Docket]

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20.19 Dr. David Carpenter Testimony, in ***Quebec Energy Board - Docket no. R-3770-2011- Authorization of an Investment by Hydro-Quebec Distribution Advanced Metering Project Phase 1; Referred to in Section 44 of David O. Carpenter's Expert Report Mechanisms of Interaction between RF/MW Radiation and Biological Systems at the Cellular Level***, Province of Quebec, District of Montreal, Canada; C-SE-AQLPA-0072, SE-AQLPA-7, Doc. 1.1, parag. 44, 55; Filed on May 15, 2012. Section 44 of Dr. Carpenter's report filed in the referenced court docket are citations for research studies that provide evidence of mechanisms for interaction between RF/MW radiation and biologic systems at the cellular level. It is the Interveners' intent that all thirty one of the cited studies and full copies along with this report be included as part of the subject MPUC docket (Litovitz, 1994; DiCarlo, 1998; Penafiel, 1997; Dicarlo, 1999; Litovitz, 1990; Litovitz, 1997; Litovitz, 1997; Litovitz, 1993; Serban, 1994; Vileno, 2010; Maaroufi, 2011; Nelson, 1994; Alvarez 1989; Devasagayam, 2003; Ozgur, 2010; Gutteridge, 1981; Yan, 2009; Yan, 2008; Simbürger, 1997; Chen, 2010; Migliore, 2009; Tice, 2002; Vijayalaxmi 2009; Sannino, 2009; Brusick, 1998; Belyaev, 2009; Sun, 2006; Lyle, 1983; Elekes, 1996; Dabala, 2008; Surcel, 2009). **[Copy filed in Docket]**

20.20 Dr. David Carpenter Testimony, in ***Quebec Energy Board - Docket no. R-3770-2011- Authorization of an Investment by Hydro-Quebec Distribution Advanced Metering Project Phase 1; Referred to in Section 40 of Dr. Carpenter's Expert Report, Neurologic, immune, endocrine, reproductive and cardiac adverse health effects from low-dose, chronic exposure to RF/MW radiation in humans***, Province of Quebec, District of Montreal, Canada; C-SE-AQLPA-0072, SE-AQLPA-7. Dr. Carpenter's Report includes full copies of studies that show neurologic, immune, endocrine, reproductive and cardiac, adverse health effects from low-dose, chronic exposure to RF/MW radiation in humans. It is the Interveners' intent that all of the cited studies be included as part of the subject MPUC docket (Volkow, 2011; McCarty, 2011; Papageorgiou, 2011; Altpeter, 200; Abelin, 2005; Hutter, 2006; Preece, 2007; Robertson, 2010; Buchner, 2011; Eliyahu, 2006; Barth, 2008; Augner, 2010; Avendano, 2012; Baste 2008). **[Copy filed in Docket]**

20.21 Curtis Bennett, ***Second Amended Declaration of Curtis Bennett; in Portland Division, AHM, by and through her Guardian ad litem and father, David Mark Morrison versus Portland Public Schools, Civil Action No. 3:aa-cv-00739-MO.*** U.S. District Court of Oregon, December, 2011. Mr. Bennett provides a good basic discussion of the underlying plausibility of non-thermal adverse effects caused by RF radiation, and explains based on his knowledge of electricity, how some mechanisms may work. He cites a number of mechanistic studies that the WHO underemphasized: Zhou et al 2011, the study that suggests that intermediate frequency fields allow large segments of the DNA molecule, but not its entire length, to become polarized. This polarizing in turn causes clumping and DNA collapse (Zhou et al., *Collapse of DNA in ac Electric Fields*,

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Phys Rev Lett 106, 248103, 2011 and Baan et al, 2011, *EMFs generated by RF sources couple with the body, resulting in induced electric and magnetic fields and associated currents inside tissues*. The most important factors that determine the induced fields are the distance of the source from the body and the output power level. Additionally, the efficiency of coupling and resulting field distribution inside the body strongly depend on the frequency, polarization, and direction of wave incidence on the body, and anatomical features of the exposed person, including height, body-mass index, posture, and dielectric properties of the tissues. Induced fields within the body are highly non-uniform, varying over several orders of magnitude, with local hotspots.

http://www.natap.org/2011/newsUpdates/062311_01.htm. Mr. Bennett also discusses medical equipment interference with apnea monitors, cardiac defibrillators, etc.

[Filed in Docket 03/04/13; Item #382]

20.22 Dr Andrew Goldsworthy, ***Declaration of Dr. Andrew Goldsworthy, BSc, PhD; in Portland Division, AHM, by and through her Guardian ad litem and father, David Mark Morrison versus Portland Public Schools***, Civil Action No. 3:aa-cv-00739-MO; U.S. District Court of Oregon, 2010. Dr. Goldsworthy's testimony is valuable to this case because he is an expert botanist and biochemist. None of the experts presented by the Complainant or CMP hold these credentials. His CV is included. Dr. Goldsworthy, in his testimony, takes RF to the basic level of the cell and membrane potentials. He studied calcium efflux from cell membranes. RF/MW radiation that is far too weak to cause significant heating can remove calcium ions from cell membranes in the brain and elsewhere. He says that voltage gradients allow membranes, which are often only two molecules thick, to rectify themselves and demodulate. He gives an example of an artificially created radio set from a single carbon nanotube having a similar diameter to an ion channel in a membrane. This nanotube works, just as he believes the membranes do. In his testimony in Oregon, he explains a number of studies regarding RF radiation damage resulting from the peroxidation of polyunsaturated lipids in cell membranes and changes to the nucleic acid metabolism of cells. He gives examples of recent studies. Molecular effects caused by cell phone radiation (11 studies cited) DNA repair disruption (3 studies cited), Micronuclei formation, immune response suppression (7 studies cited). Then he discusses mechanisms and explains how the effects can arise, and describes how some of the consequences of Leaky Cell Membranes arise: Blood brain barrier loss of protection, effects on metabolism, cardiac arrhythmia, allergy effects, skin effects, hormonal effects. In his expert opinion virtually all share a common mechanism of "leaky membranes", and the evidence fits together leaving little doubt that reported effects are real and must be taken seriously

[Previously filed in Docket as Evidence 11 on 03/04/13; Item #382]

20.23 Dr. Andrew Goldsworthy, ***Expert Witness Statement***, Standing Committee off the Canadian House of Commons, April 2010. Dr. Goldsworthy notes that there are literally thousands of scientific papers written on the non-thermal effects of weak non-ionizing

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radiation such as that from our smart meters and / or cell phones, and well over half of them show some sort of biological effect. He believes that it is the “biological variability” of human beings, due to their genetic makeup that makes studying the effects of RF/MW difficult. In this testimony he suggest a more realistic approach is to look at frequently reported effects to see common underlying threads that may indicate a common mechanism. He suggests two: cryptochrome, which affects animal navigation, the immune system and circadian rhythms, and calcium efflux from cell membranes.

[Previously filed in Docket as Evidence 11 on 03/04/13; Item #382]