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United States District Court
District of Oregon
Portland Division

Alexandra Helene Morrison, by and through
her Guardian *ad litem* and father,
David Mark Morrison, and
David Mark Morrison, individually,

Civil Action No. Cv-739-MO

Declaration of Barrie Trower

v.

Portland Public Schools,
Defendant.

I, Barrie Trower, under penalty of perjury pursuant to 28 U.S.C. § 1746, hereby make the following declaration in support of a preliminary and permanent injunction enjoining Portland Public Schools' use of WI-FI:

Background

1. I trained at the Government (Ministry of Defense) microwave warfare establishment(s) early in the 1960s covering all aspects of microwave technology, uses and health dangers. Later works included under water bomb-disposal which incorporated microwave technology.

2. In the late 1960's and 1970's a part of my task was to extract confidential (hitherto secret) information from master criminals, terrorists, and spies. This included Cold War microwave technology.

3. My first degree is in Physics with a specialization in microwaves. My second degree is a research degree. I have a teaching diploma in human physiology. Before retiring, I taught advanced physics and mathematics at South Dartmoor College.

4. I am Scientific Advisor to the Radiation Research Trust and the H.E.S.E. (Human Ecological Social Economical) Project.

5. I am the author of both Tetra Reports for the Police Federation of England and Wales and the Public and Commercial Service Union.

6. My work is done entirely free of charge and I have never accepted money from any person or organization in the years I have been doing this research. I consider myself absolutely independent.

Origins

7. To my knowledge, 'microwave or radiowave sickness' was first reported in August 1932 with the symptoms of: severe tiredness, fatigue, fitful sleep, headaches, intolerability and high susceptibility to infection. Hecht, K *et al.*, *Overloading of Towns and Cities with Radio Transmitters (Cellular Transmitter): a hazard for the human health and a disturbance of ecoethics*, International Research Centre of Healthy Ecological Technology (IRCHET), Berlin-Germany, at 1 ¶ 3 (2007). These symptoms were reported to be from athermal effects.

8. By 1971, the US Naval Medical Research Institute (NMRI) referenced 2300 research articles listing in excess of 120 illnesses attributed to radio frequency and non-ionizing microwave radiation. *Biography of Reported Biological Phenomena ('Effect') and Clinical Manifestations Attributed to Microwave and Radio-Frequency Radiation*, Research Report. MF12.524.015-0004B, Report No. 2. NMRI, National Naval Medical Centre (1971). Under the Freedom of Information Act, extracts from published US Defence Intelligence Agency Documents confirmed the NMRI research and stated: 'If the more advanced nations of the West are strict in enforcement of stringent exposure standards, there could be unfavourable effects on industrial output and military functions.' Defence Intelligence Agency Documents: DST - 1810S - 076-76, ST-c5-01-169-72, DST-18105-074-76 (1972-1983).

9. In 1975, after an extensive study, the United States Defence Intelligence Agency warned all of its personnel of the risk from low level microwaves including illnesses ranging from microwave sickness (flu like symptoms, depression, suicidal tendencies) to cancers and leukaemia. *Biological effects of electromagnetic radiation (radiowaves and microwaves) – Eurasian Communist Countries*, Defence Intelligence Agency: DST-1810S-074-76, March (1976).

10. During the Cold War, the Russian Embassy microwaved the United States Embassy in Moscow with low level microwaves for many years from across the road; why and how is outside the scope of this Declaration. After many changes of staff for multiple cancers / leukaemias and other illnesses to both male and female employees and their children, the late John R. Goldsmith, M.D., was invited to investigate this matter. His investigative report on this incident showed that continuous long term low level microwaves were responsible for those illnesses. Goldsmith, J. R., *Radiofrequency Epidemiology*, Environmental Health Perspectives, Vol 105, at 1585, Supp 6, Table 8, Dec (1997). Dr. Goldsmith held 11 Professorships and was the

World Health Organization (WHO) representative for Europe. Interestingly the power of the microwaves used by the Russians in some cases was less than the power used by modern day transmitters. Dr. Golsworthy, http://www.radiationresearch.org/goldsworthy_bio_weak_em_07.pdf; Warning on health and fertility, <http://omega.twoday.net/stories/1755556/>.

11. Debriefing spies during The Cold War extended my military education into the full diversity of stealth microwave warfare and communication systems. In so doing, I learned a list of approximately 30 pulse frequencies that could induce some 50 mental and physical ailments by entrainment.

12. As soon as ordinary microwave transmitters became common place residents started to complain of illnesses and cancer clusters. Independent researcher Sue Webster took data from just 19 transmitters and found approx 92 cancers (breast, thyroid, bowel, leukaemia) the average age of those affected was roughly 39. Health Dangers from Wireless Laptops, Sue Webster was quoted in Canceractive's ICON magazine in January 2003 article, <http://www.canceractive.com/s-hop/product.php?productid=16157&cat=255&page=1>.

13. Microwave sickness was well documented by 1997 where over 100 further research documents were referenced. Grant, L., *Microwave Sickness*, Electrical Sensitivity News, Vol I No 6, Vol 2 Nos 1-4 (1997).

14. Portland Public Schools is transmitting electromagnetic frequencies (EMFs) at low levels (2.5 GHz to 5 GHz frequency that means between 2.4 and 5.8 billion Hz). When I realized that similar frequencies and powers that were used as weapons during the Cold War were being used as WI-FI in schools, I decided to come out of retirement and travel around the world free of charge and explain exactly what the problem is going to be in the future.

15. HAARP was originally researched by Sister Dr. Rosalie Bertell who was concerned about electromagnetic interference to our atmosphere. HAARP reflects electromagnetic waves off the ionosphere and can influence any part of the air or land on this Planet. This has the potential to cause physiological and neurological effects on humans, animals and plants.

16. The paradox of course is how can microwave radiation be used as a weapon to cause illness or death and at the same time be used as a safe communications instrument. Therefore, I fail to see how WI-FI can possibly be safe for the school children and teachers exposed to it. Also, why is there a still an on-going stealth microwave warfare industry, continuing from the 1950's.

Technology

17. The International Commission for Non-Ionizing Radiation (ICNIRP) classifies microwaves as electromagnetic waves from 300 MHz to 300 GHz. ICNIRP Guidelines, Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (Up to 300 GHz), Health Physics April 1998, Vol 74, No 4, 522, www.icnirp.de/documents/emfgdl.pdf. Therefore, everything discussed in this report is in the microwave 'band.'

18. Microwaves react very differently in our water-based bodies to radio waves. The term 'Radio Frequency' is often used to describe microwave based communication systems. It is important that the term 'Radio Frequency' is not associated with Radio Waves, but associated with microwaves. Microwaves are the preferred medium for communication, over radiowaves, due to their *superior penetrative properties*.

19. What is all this really about? Imagine the field around a magnet and imagine ordinary everyday static electricity. If you put the force field from the magnet with the force field from the static electricity you make a wave. This wave is called an electromagnetic wave. There are lots of different types of electromagnetic waves but they are all made of the same two things, magnetic and static fields. The main difference between these waves is their wavelength or the

length of the wave hence the number of waves that can be produced per second, i.e. the frequency. All electromagnetic waves are put into a table called the electromagnetic spectrum.

20. At one end of this electromagnetic spectrum you have the very short waves, namely gamma rays and x-rays, and at the other end of the spectrum you have the very long waves, namely TV and radio. All waves have the same properties. They can be reflected, diffracted, and they all travel at the same speed, which is the speed of light. For interest, if you were one wave of light you would be able to travel around the world nearly seven times every second; that is the speed of light. The electromagnetic spectrum is ordered; starting with the short wave end you have gamma rays, x-rays, ultra-violet, visible light, infra red, microwaves, TV and radio being the longest, in that order. The ultra-violet and above are known as ionizing waves and there is no argument as to the damage they can cause when entering the body. Longer than ultraviolet is said to be non-ionizing and this is where arguments occur between scientists as to whether damage can occur inside the human body through exposure to these waves. The microwaves used in the WI-FI system are in the non-ionizing section of the electromagnetic spectrum and I will be discussing the arguments concerning microwaves and health herein.

Adverse Health Effects

21. There is a plethora of extensive, well-researched documents highlighting illnesses caused by microwave sickness around the world. These papers (in their thousands) highlight the illnesses caused by low level (below thermal) microwaves as: arrhythmia, heart attack, cell death, diseases of the blood, interference to bone marrow, brain tumours, DNA damage, altered calcium level in cells, reduction in night-time melatonin, suppression of the immune system, arthritis, rheumatism, skin problem, lymphatic diseases, vaginal discharge, vascular system disease, tinnitus, leukaemia, childhood cancer, sleep problems, mental problems involving depression, irritability, memory loss, difficulty in concentrating, headache, dizziness and fatigue, suicidal tendencies, miscarriage and infertility.

22. It is often argued that these illnesses are psychosomatic. For example, when a neighbourhood sees the erection of a transmitter, any illness is instantly blamed on that transmitter. Psychologically the mast is deemed to have caused the illnesses. However, an argument against this are the many cases where disguised, stealth, or concealed transmitters have been erected without local knowledge and similar illnesses still occur.

23. Before I go further, I wish to comment on the telecommunication industry's own research. In February 2007, I was invited to give a short presentation concerning low-level microwave irradiation and cancer at London's Great Ormond Street Hospital for Children. One of the other speakers present was Dr. George Carlo. Sharing the same hotel afforded me the opportunity to engage in several conversations with Dr. Carlo during the two days we were in London. Dr. Carlo explained how he was commissioned by the mobile industry to conduct research on its products. His study (www.health/concerns.org) involved 200 research doctors and 15 epidemiological studies (1993-1999), at a cost of 28.5 million US dollars. 'Our data showed *increased risk to children*, concerning tumours, genetic damage and other problems,' explained Dr Carlo. He continued, 'my results were suppressed by the telecommunications industry.'

24. Further discussion of industry influence is warranted as The University of Berne, Switzerland, published a data synthesis of 59 research studies involving possible ill health from low level microwave irradiation. Concluding, the Department of Social and Preventive Medicine stated: 'Studies funded exclusively by industry reported the largest number of outcomes, but were least likely to report 0 statistically significant result. The interpretation of results * * * should take sponsorship into account.' Huss, A. *et al.*, Source of Funding and Results of Studies of Health effects of Mobile Phone Use: Systematic Review of experimental Studies, (2006), University of Berne, Finkenhubelweg II, Switzerland (egger@ispm.unibe.ch).

25. Moreover, the 'Journal of Industrial Medicine' published its concern over industrial affiliation being concealed by research scientists; suggesting biases from conflicting interests in risk assessments cannot be evaluated properly. Hardell, L., *et al.*, *Secret Ties to Industry and Conflicting Interests in Cancer Research*, American Journal of Industrial Medicine, at 1, May (2006), [Wiley-Liss Inc.]; www.interscience.wiley.com; Dept of Oncology, University Hospital, Orebro University, Sweden.. Examples of these problems from Sweden, the United Kingdom and the United States are presented.

26. Notwithstanding industry's attempts to influence research, even their own studies continued to find adverse health effects. One example is a worldwide epidemiological study (commissioned by T-Mobile, on its own product) that concluded, 'On the cellular level, a *multitude of studies* found the type of damage from high frequency electromagnetic fields which is important for cancer initiation and cancer promotion.' Mobile Telecommunications and Health, ECOLOG Institute, Sec 7, April (2000) (mailbox@ecolog-institut.de). This document also describes DNA damage on the same page.

27. Nearer in time, following a spate of illnesses in their surgeries, On October 9, 2002, a group of doctors produced the Freiburger Appeal. <http://omega.twoday.net/stories/555926/>, scroll down for cluster listing. Initially signed by 270 medical consultants, scientists, GPs, MPs and physicians, it now has many thousands of Signatories worldwide. It is a warning to decision makers concerning illnesses from low level microwaves. This appeal lists 13 severe chronic illnesses and various disorders involving: behaviour, blood, heart, cancers, migraines, tinnitus, susceptibility to infections and sleeplessness, all ascribed to: 'pulsed microwaves from mobile communications technology.' *Interdisziplinäre Gesellschaft für Umweltmedizin e. V.*, <http://www.e-smognrw.de/news/skandal/wewelsburg/HESEProject!FreiburgerAppell/LivelistenderunterschriftensammlungfurdrenFreiburgerAppellArztelists.htm>.

28. International schools published a list of illnesses amongst staff and students with frightening numbers of cancer clusters/illnesses. Schools and Cell Tower Antennas, (2003), <http://members.aol.com/gotemf/emf/schools.htm>; www.omega.twoday.net/stories/555926 (47 cancer clusters around schools).

29. Another report (*School References (school and cell tower antennas)*) from 138 schools dated November 2003, lists miscarriages, brain tumours, cancers, breast cancers and teachers ill within this report. One single school had transmitters on its roof in the Saint-Cyr-l'Ecole quarter of France where eight cases of cancer were confirmed among children in the district.

30. The Stewart Report 2004 asks that anecdotal evidence be taken seriously in the absence of long-term epidemiological studies, concerning illnesses around the area of mobile phone transmitters. Such anecdotal evidence produced July 2002 refers to 92 cases of cancer around just 19 mobile phone transmitters. Other illnesses on the same paper refer to breast cancers, thyroid, bowel and blood problems.

31. In 2007, an international group of scientists studied 2000 peer reviews and published research papers. They recommended an acceptable level of radiation of not more than 0.6 v/m (outdoors) and 0.2 v/m indoors, based on the interaction between low-level microwaves and the cellular processes. This became known as the Bioinitiative Level.

32. A project called EU-Reflex or European Union Risk Evaluation of Potential Environmental Hazards from Low Frequency Electromagnetic Field Exposure using sensitive in Vitro Methods shows that cells exposed to cell phone radiation exhibit chromosomal damage well below the exposure guidelines of the WHO.

33. NAILA/WOLF/HUTTER/SANTINI/OBERFELD/BAMBERG etc. All show increased cancers/illnesses from low-level microwave irradiation. A good summary of these studies, with details, can be found on the Radiation Research Trust's website www.radiationresearch.org.

34. The International Association of Fire Fighters oppose the use of fire stations as transmitter sites, because of the health problems of its members. International Association of Fire Fighters, www.iaff.org/safe/content/celltower/celltowerfinal.htm.

35. The world renowned winning Irish Doctors Association listed 70 research papers showing the dangers from low level microwaves, Dr. Santini listed 20 similar studies, the EM Radiation Research Trust listed 9 studies, Dr. Blackwell listed 6 similar studies in his report, and finally 4 international universities completed the Spanish Study, which verified all of these known illnesses. The authors of the Spanish study (The Microwave Syndrome-Further Aspects of a Spanish Study 2004) recommended a level 10 million times below ICNIRP guidelines (discussed below). Dr. Gerd Oberfeld, one of the authors of the study, is the Director of the Public Health Office in Salzburg, Austria, which lowered its precautionary value for indoor exposures to GSM frequencies to comply with the recommendation made by the study. See: <http://www.ideaireland.org/emresearch.htm>; Santini paper (2006): http://next-up.org/pdf/Roger_SANTINI_Scientific_arguments_to_prove_application_of_precaution_principle_mobile_phone.pdf, Dr. Grahame - Six studies showing ill effect: <http://www.starweave.com/masts/>; The Microwave Syndrome Further Aspects of a Spanish Study: http://www.hese-project.org/hese-uk/en/papers/navarro_n%20045%20_p353%20-%20p358_.pdf.

36. Listing and referencing all such epidemiological studies would be too extensive and repetitive for this article; suffice to say, by 2006, it was reported that 80 percent of the epidemiological studies on the WHO database lists illnesses from microwave sickness to a fourfold increase in cancers from low level microwaves. Guilmot, Jean-luc., *WHO EMF Database, Watch - Understand - Act* 26, Sept (2006), www.001be.cx. I was curious to investigate the remaining 20 percent that showed no symptoms. However, this had already been looked at by Swiss scientists who said ‘the interpretation of results * * * should take

sponsorship into account.’ By that time, Michael Meacher, Minister for the Environment 1997-2003 (United Kingdom), had published a report blaming some universities for accepting lucrative contracts in favour of reporting favourable results from scientific research. In the same month, United States Congressman Henry Waxman published a similar report in Scientific American stating that science was being corrupted by industry. <http://www.next-up.org/pdf/OpenLetterWHODrvanDeventer.pdf>; Swiss Study on funding sources; <http://www.ehponline.org/docs/2006/9149/abstract.html>; Michael Meacher quote, <http://www.epolitix.com/EN/MPWebsites/Michael+Meacher/c8afdecc-b15e-41ad-b9cf-25354790d2dc.htm>, also published in The Times, May (2004); Henry Waxmann in The Scientific American, <http://www.sciam.com/article.cfm?articleID=0000FF81-A7DD-1084-A73E83414B7F0000> (May 2004).

37. Likewise, the WHO’s Guidelines are based on the short-term effects of this radiation. No long-term experiments have been done in terms of safety levels.

Current Regulations and Thermal Heating

38. *It is a serious thing, even low levels of microwave radiation!* Emphasis supplied.

39. Advancement in microwave technology since the Cold War necessitated concurrent experimentation. Thousands of research studies exist concerning ill effects from low level, below thermal irradiation levels, involving almost every organ in the body. Possibly the most comprehensive explanation for this phenomenon is written by Dr. A. Goldsworthy of Imperial College London: *The biological effects of weak electromagnetic fields* (2007), <http://tinyurl.com/2nfujj>; also: a.goldsworthy@imperial.ac.uk.

40. The safety levels set by ICNIRP and the National Radiological Protection Board (NRPB), and which are followed by the United States, are the highest in the world. Being thermally based (no account whatsoever is given to the effect of the electric and magnetic of the wave interacting with the physiology of the body) it is very unlikely, if not impossible for any person to receive the

warming of the body to exceed their safety levels if this person is not sitting right on top of the transmitter. As an example of safety levels in units of Microwatts per cm², the maximum levels for 400,900 and 1,800 MHz transmitters are 2,640, 3,300 and 10,000 of these units. By contrast Russia and China have a total maximum of 10 of these units, Toronto has a maximum of 6 and in Salzburg, The June 2000 International Conference at Salzburg, consisting of 19 of the world's top scientists in this field, set the level already given as 0.1 units.

41. The EU Parliament on September 4, 2008, by 522 votes to 16, stated that the 'ICNIRP guidelines were obsolete and out of date.' Mast Action UK - Legal Services (2010).

42. By way of example, Russia is banning any children under 18 from microwave exposure, when possible, and in Britain, children under 12 should have no microwave radiation exposure at all. Also, as a result of research that documents the harmful effects of microwave radiation on fetuses, the British government warned pregnant women to avoid exposure to microwave radiation.

43. NRPB and ICNIRP's safety levels are based purely on thermal effects. Looking at scientific papers, most of the rest of the world disagrees with this assessment. Dr. Cletus Kanavy, Chief of the Biological Effects Group of the Phillips Laboratory's Electromagnetic Effects Division at Kirkfield Air Force Base in New Mexico, says there is a 'Large amount of data, both animal, experimental and human clinical to support the existence of chronic non thermal effects * * * these include behavioural, neural, fetal, blood, metabolic, endocrine and immune problems.'

44. Professor John R. Goldsmith who holds 11 Professorships, WHO Officer for Europe and International Consultant for RF Communication, possibly the world's leading expert in this field (now deceased), wrote in his paper *The End of Innocence*, 'to use the lack of significant heating effect as evidence of lack of risk is the red herring.'

45. During September 2002 at the University of Vienna, 19 of the world's top scientists met to discuss electromagnetic waves. This was known as the Catania Resolution. They stated 'we

take exception to arguments suggesting that weak, low intensity EMF cannot interact with tissue. There are plausible mechanistic explanations for EMF induced effects that occur below present ICNRP guidelines and exposure recommendations by the EU.

46. A confidential note (document number DST-1810S-074-76) to its military personnel in March 1976, states, 'personnel exposed to microwave radiation below thermal effects experience more neurological, cardio-vascular and haemodynamic disturbances than do their unexposed counterparts.' This document from the United States Defence Intelligence Agency continues to warn personnel of headache, fatigue, dizziness, menstrual disorders, sleeplessness, depression, anxiety and so on.

47. Professor Adey, a Fellow of the American Academy of Scientists and a distinguished visitor of the Royal Society of Medicine said 'of his own research in parallel with similar studies in Russia in the early 1980's showed that radio frequency and the lower microwave range affected enzyme systems that regulate growth and division of white blood cells.

48. Clearly there is experts' world opinion both military and from Universities showing that radiation below thermal *effects* can impinge on our physiological functions.

49. In its 2009 report, the ICNRP writes: "Another gap in the research is children. No study population to date has included children * * *." ICNRP, *ICNRP Statement on the "Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic and Electromagnetic Fields (Up to 300 GHz.)*, Health Physics, Vol 97, No 3, at 257, Sept (2009). No matter the level of radiation in the room, there is no safety level for microwave radiation for children.

50. Further, It should be noted that whilst professional bodies have noticed the effects of pulsed microwaves on the physiology of the body, no experiments have been done to determine the safety levels from the pulsed microwaves exhibited by all microwave communication systems,

and that *no safety levels exists for pulses microwave radiation*. All mobile communication systems pulse in some way.

Pulse and Modulation

51. Carrier waves may be used to carry information (video or audio data) that can be superimposed on them by modulation.

52. Sometimes academic arguments arise where the word 'pulsing' is not used and a word like 'modulated' substituted. Theoretically, there can be very little difference between a modulated wave and a pulsed wave.

53. Scientists argue over what constitutes a modulation or pulse. A modulation is a superimposition of data upon a carrier wave; modulations are usually connected with an infinitesimally thin thread of 'energy.' A pulse has no such attachment to the following pulse. A reader may wonder why this distinction is relevant. Some scientists blame pulsed microwaves for various biological reactions within our cellular structures, which they believe cause illness.

54. An opposing view is that these pulses are in fact modulations and will not cause such reactions. Further arguments suggest that there is no biological difference between a frequency modulated transmission or pulse when it comes to resonance with our cyclotronic and circadian rhythms.

55. Transmissions may be directional or isotropic (equal in all directions), may be analogue (continuously variable quantity e.g. spatial position) or digital (sometime called 'frequency modulated'). However, all transmissions are electromagnetically propagated. In the world of nuclear and atomic physics, electronic switches can make tens of millions of decisions a second and all transmissions travel at the speed of light (roughly seven times around the World each second).

56. Transmissions can be increased, by possibly up to 40 percent, with side lobe technology. Vector mathematics can demonstrate whether any of these transmissions are incident upon another transmitted wave such as a low frequency radio wave, as there can be a piggy-back effect (constructive interference). It is argued (Curry, Dr. BP, Amplification of the Radiation from two Collated Cellular System Antennas by the Ground Wave of and AM Broadcast Station, (undated), BPCurry@MCS.com) that this amplification of electromagnetic signal can pose a health risk for those in close proximity to a transmitter.

57. The Health Council of the Netherlands Radio Frequency Radiation Committee say in their 200 page 1997 report, concerning frequencies of 300 Hz to 300 GHz: 'The experimental data indicate that the effects of EM fields occur at lower power densities when the object is exposed to pulsed electromagnetic fields.' In other words, you will get illnesses quicker if the microwaves are pulsed. Health Council of the Netherlands: Radiofrequency Radiation Committee, *Radiofrequente elektromagnetische velden (300 Hz – 300 GHz)*, at 134 (1997).

58. Professor Salford at Lund University in Sweden has shown in his work in the year 2000 that pulsing can alter the permeability of the blood/brain barrier in rats. If occurring in humans, this could have profound effects on brain function.

59. The Freiburger Appeal (2002) signed by approximately 2,000 doctors and scientists says 'One can no longer evade these pulsed microwaves. They heighten the risk of already present chemical/physical influences, stress the body's immune system and can bring the body's still functioning regulatory mechanisms to a halt. Pregnant women, *children*, adolescents, elderly and sick people are especially at risk.'

60. Assimilating knowledge from the Cold War and other sources, I accumulated a plethora of data describing how pulsed / modulated microwaves interfere with our cellular biochemistry. Believing the communications industry to be spiralling out of control with its new innovations,

I published my list on the internet (*The Communications Industry is in the position where it is spiralling out of any person's ability to control it*, An open letter from Barrie Trower (undated); <http://omega.twoday.net/search?qBarry+Trower>; <http://www.mastsantiy.org>), in the hope that the industry would take note.

Children

61. I find Portland Public School's decision to install WI-FI in conflict with its decision against (see Correspondence, Patrick Wolfe, Complaint Ex. B) installing any cell mast technology on its buildings when a classroom of computers could exceed the power from an ordinary mobile phone transmitter. It is a common misconception that as WI-FI uses a small transmitter, such a low dose of radiation must be harmless (see further discussion below, ¶ 75-80). As shown earlier there are now many studies showing illnesses from these transmitters, and this is confirmed by the WHO.

62. What should be happening is you should be measuring the amount of radiation in the room to determine if it is safe for children. However, I can tell you without looking that it is not. Because unlike medication, where there is an adult dose and a children's dose, there is no safety level for microwave radiation for children, not one. My position as scientific advisor requires that I read and translate papers from all around the world, and, I have never, ever, no matter which country I lecture in, which paper I have read, I have never seen a single scientist brave enough to submit for peer review a safety level of microwave radiation for a child or embryo. There is not one that exists.

63. Children are particularly susceptible to microwaves, they do not have our immune systems, and they are not developed. As well, their skulls are thin and their bones (which are producing stem cells that make their immune systems and all other parts of their bodies) are soft allowing the microwaves to penetrate very easily (Cherry (1998),

<http://www.emfguru.org/EMF/genotoxic/Genotoxic-EMR-paper.htm>, scroll down to figure 45, (there is research to show that stem cells, in the bone marrow can absorb microwaves)). Finally, they act like antennas and absorb more radiation than adults because they are smaller, they are nearer the wavelength.

64. Children are not small adults. Children are physiologically and neurologically immature; their systems have not yet formed. Microwave radiation alters the blood brain barrier so toxins leak into the brain, which can cause psychiatric problems amongst many other problems. Auditory hallucinations that make people think they are hearing sounds, difficulty concentrating, sleeplessness and irritability are among the symptoms of blood brain barrier damage. Likewise, a child's immune system, which fights off infection, takes 18 years to develop. Additionally 122 layers of protein insulate the electrically generated signals used by the nervous system to control muscles and organs. These layers of protein take 22 years to develop: microwave radiation has been shown to affect protein synthesis. This could lead to muscular dystrophy like symptoms in later life.

65. I have always predicted that any school which allows itself to be 'bathed' in microwaves from whatever source will see its sicknesses rise and behaviour fall. I have received many phone calls to confirm this. In all of the schools I have visited around the world with WI-FI, every one has reported the same symptoms in students: fatigue, headaches, nausea, chest pain, vision problems. I argue that you could experience psychiatric problems, increase in aggression and other bad behaviour, as well as reduced immune systems, leading to more colds, coughs, longer colds, longer coughs, longer illnesses, depression, anxiety, thence, suicidal tendencies or taken to its ultimate – leukaemia.

66. Research suggests children and women (females have more complex hormone based systems to be disrupted than males) exhibit more vulnerability to illnesses from irradiation than adult males.

67. The problem with young girls is that microwave irradiation has been shown to damage the genetic structure in their ovaries. Girls are born with all of the eggs they need in their ovaries at birth. They are immature eggs, hence susceptible to damage during growth. *Microwaves are genotoxic* (experiments can be linked to children showing low level mobile telephony radiation disrupts the bio-chemistry of follicle cells in a mammalian egg chamber), hence the microwaves irradiation could affect the genetic structure within the eggs. The problem here is that the mitochondrial DNA, the genes inside the ovaries, is irreparable. If you have a little girl who damages, through this mechanism, the genetic structure in one of her eggs and she has a daughter, that daughter will carry that genetic problem, because it is irreparable. And her daughter will carry that genetic problem, because it is irreparable. And every female *forever*, in that line, will carry that problem in perpetuity, because it is irreparable.

68. I believe the most important research I have read is from Dr. Goldsworthy, *The biological effects of weak electromagnetic fields* (2007), <http://tinyurl.com/2nfuj>; also, a.goldsworthy@imperial.ac.uk. Dr. Goldsworthy not only shows the mechanism by which microwaves disrupt cells, but also predicts that a genetically damaged sperm and egg can lead to mutant offspring maybe generations away. If you think of children with these transmitters near their laps, the question must be, ‘why take this risk for the sake of a piece of cable and a plug, which could replace WI-FI with no loss of performance?’

69. The mechanics of this process is understood as permanent low level microwave exposure induces chronic nitrosative and oxidative stress. Warnke, http://www.hese-project.org/de/emf/WissenschaftForschung/Warnke_Dr.%20rer.%20nat._Ulrich/20050219_VortragDrWarnke.

pdf (2005) (in German, English translation in progress). It is known that chronic nitrosative/oxidative stress damages the mitochondria, the “powerhouses” of each cell in the body. Mitochondropathy is at the root of many of today’s chronic illnesses, such as MS, Alzheimers, Parkinsons, Fibromyalgia Diabetes, Artherosclerosis and Obesity. Kuklinski, http://www.kpu-berlin.de/For_Neu_Kuklinski_1_en.html (2004). Even more disturbingly, when chronic nitrosative and oxidative stress is present, irreversible mitochondrial DNA damage will occur sooner or later (see also Kuklinski, http://www.kpu-berlin.de/For_Neu_Kuklinski_1_en.html (2004)). The mitochondrial DNA is ten times more susceptible to nitrosative / oxidative stress than the DNA in the cell nucleus. Whilst regular cell DNA has in-built repair mechanisms, mitochondrial DNA is irreparable due to its low histone protein content. The mitochondropathy is therefore irreversibly transmitted to the children by the maternal egg cell causing cumulative irreparable damage to future generations.

70. No matter the level of radiation in the room, there is no safety level for microwave radiation for children.

Electro-sensitivity

71. The World Health Organization (WHO) recognizes and describes electro-sensitivity. Electro-sensitivity is best described rather like a food allergy that can only get worse the more you are exposed to it.

72. In Sweden, it is published that 3.15 percent of its population is medically recognized and registered as being handicapped from electro-sensitivity. This number is comparable in California and it is believed Australia. However, the Irish Doctors Association believe this figure may be as high as 15 percent.

73. Therefore, if this number were compared with the population of the Mount Tabor Middle School, at a minimum, 20 to 90 schoolchildren (out of an approximate enrolment of 600

children) are electro-sensitive and could be at a greater risk of developing neurological and physiological illnesses. This is not to say that non electro-sensitive children could not also be affected.

Experimentation

74. In 2008, the European Parliament wrote to its 27 countries urging them to ignore WHO guidelines and set exposure limits at lower levels. Ries, *European Parliament 2004-2009 Commission on the Environment. Public Health and Food Safety, 2008/2211/INI* (translation by www.nexyt-up.org) Editor: Frederique Ries (2008). In response, the WHO (which only began studying microwave radiation effects on children in 2009) stated they will not comment on microwave radiation effects on people until 2015, when it will be able to establish effects on human beings. They are watching people to see how many will become sick. We are being experimented upon.

The Accumulative Dose

75. Professors Sosskind, Provsnitz, Lai, and Cherry and a Russian International Medical Commission have all warned about the cumulative effect of these microwaves.

76. Professor Sosskind and Provsnitz write, ‘an accumulated cellular level damage mechanism is not necessarily related to the intensity but can relate to total dose.’ This is not surprising; a property of the electromagnetic spectrum is that these waves are accumulative. By way of example, if we go out on a cloudy day we can still get sunburned, it just takes longer.

77. In the report *Mobile telephones, their base stations and health*, from the French Health General Directorate, January (2001), they warn of the cumulative exposure over the lifetime of a child. This body concluded with an interesting sentence stating, ‘biological effects occur at energy levels that do not cause any rise in local temperature.’ As it may be argued that biological effects may not be hazardous, *the responsibility for this decision*

concerning children should lay with the parents, guardians or those in loco-parentis and not the school.

78. Based upon a review of the Mount Tablor WI-FI Floor Plan (Complaint, Ex. A), schoolchildren will be exposed to as much as 30-40 hours per week of constant digitally encoded pulsed WI-FI signals from each wireless device in the child's vicinity, making the cumulative exposure over a child's lifetime successively higher.

79. As the amount of WI-FI radiation is accumulative, when reviewing this case, it occurred to me, to compare the relative accumulative dose of WI-FI in the classrooms with a commonly known device that emits the same frequencies. That device is a microwave oven. Both WI-FI and microwave ovens operate at 2.4 GHz. An average WI-FI transmitter operates at 0.2 J/s [0.2 Watts]. Therefore, if using only 20 computer/laptop transmitters in a classroom, there is a combined 4 J/s [4 Watts]. A typical microwave oven (output) is 800 J/s [800 Watts] (magnetron input equals 1,200 J/s [1,200 Watts]). Therefore, a classroom equals 4 J/s [4 Watts]; a microwave oven 800 J/s [800 Watts]. A ratio of 1:200. Therefore, if WI-FI is used in morning and afternoon sessions, 200 seconds in a classroom (at 4 J/s [4 Watts]) equals 1 second inside a microwave oven (at 800 J/s [800 Watts]); over a school day the equivalent of 2 minutes in a microwave oven; 10 minutes per week.¹

¹ It should be noted these calculations will vary according to the following factors:

- i. There can be approximately 13 mathematical variations to wave formulae;
- ii. The $1/d^2$ rule will apply to distance;
- iii. The wall transmitter and main transmitter are not included/calculated;
- iv. Constructive interference patterns are not calculated;
- v. WI-FI sets and transmitters in nearby classrooms are not included/calculated; and
- vi. Reflective materials are unknown: i.e. wall insulation.

Ideally, a reading will be taken in a classroom with 20 or more fully operational computers and WI-FI transmission devices next to other classrooms (below, above, adjacent, etc.) with 20 or more fully operational transmission devices in each of those rooms.

80. As a final word about accumulative dose, it must be stressed that a long-low dose can be more dangerous than a short-high dose. By way of example, as I wrote in my published paper (Co-written with Scientist Andrea Klein), *Wireless Laptops and Their Transmitters Using Microwaves in Schools*, <http://www.mastsanity.org/wifi/17/154-wireless-laptops-and-their-transmitters-using-microwaves-in-schools-a-report-by-barrie-trower.html>, permanent low level microwave exposure can induce chronic nitrosative/oxidative stress; hence damage to mitochondrial DNA.

Conclusion

81. There is a simple solution, use a cable and a plug to deliver the internet, or fibre optic cable.

82. With all of this evidence pointing to mental, physical and long term disorders (cancers ~ mutant newborns), is this honestly worth the risk to our next generations for the sake of just a few metres of wire and a plug. As shown, the dangers of low level, below thermal microwaves, have been known to governments for 50 years. I was educated in microwave technology by the Military (United Kingdom) in the early 1960's, and even then we were instructed of these dangers. Nothing has changed to suddenly make microwaves safe.

83. The evidence for adverse effects of low-level microwave irradiation is currently strong and grows stronger with each new study. Using a cabled internet system does not increase exposure.

84. I ask you, if a drink was reported in the 1950's to cause cancer, countless reports and studies since showed this hypotheses to be correct, and the WHO printed a list of an 80 percent likelihood of illness/cancer from drinking it, which was confirmed by international studies, would you give this to your child to drink, knowing they have their whole lives ahead of them? So what is the difference? It is simple. This product is backed and financed by the most powerful industry on the planet. An industry that does not have to prove its product is safe (unlike a drug company). You have to prove it is not! Thence take this industry to court with

your list of illnesses, cancers, leukaemia's, deaths, etc. It seems few are prepared to stand against such a Goliath in defence of our children.

85. Within the relevant scientific community it is generally accepted that that many bioeffects and adverse health effects occur at far lower levels of radiofrequency exposure where no measurable heating occurs; some effects are shown to occur at several hundred thousand times below the existing public safety limits.

86. In my opinion, Portland Public Schools' use of WI-FI is causing and will continue to cause Alexandra Morrison, other students, and school staff and faculty adverse health effects and should be discontinued immediately.

Dated this ____ day of June 2011.

/s/ Barrie Trower

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