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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,

v.

Portland Public Schools,

Defendant.

Civil Action No.

Declaration of
Dr. David O. Carpenter, M.D.

I, Dr. David O. Carpenter, M.D., 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:

1. I am a public health physician, educated at Harvard Medical School. My current title is Director of the Institute for Health and the Environment at the University at Albany and Professor of Environmental Health Sciences within the School of Public Health. Formerly, I was the Dean of the School of Public Health at the University of Albany and the Director of the Wadsworth Center for Laboratories and Research of the New York State Department of Health.

2. I served as the Executive Secretary to the New York State Powerlines Project in the 1980s, a program of research that showed children living in homes with elevated magnetic fields coming from powerlines suffered from an elevated risk of developing leukemia. After this I became the spokesperson on electromagnetic field (EMF) issues for the state during the time of my employment in the Department of Health. I have published several reviews on the subject and have edited two books.

3. I am a Co-Editor and a Contributing Author of the *BioInitiative: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields (ELF and RF)*, www.bioinitiative.org. It documents bioeffects, adverse health effects and public health conclusions about impacts of non-ionizing radiation (electromagnetic fields including extremely-low frequency ELF-EMF and radiofrequency (RF) /microwave or RF-EMF fields). The public health chapter from this report was subsequently published in a peer reviewed journal.

4. Additionally, I am a Co-Author of *Setting Prudent Public Health Policy for Electromagnetic Field Exposures*, *Reviews on Environmental Health*, Volume 23, No. 2, 2008, attached as Addendum A-2.

5. In addition, in 2009, I was invited to present to the President's Cancer Panel on the subject of powerline and radiofrequency fields and cancer, and have testified on this issue before the United States House of Representatives.

6. I am a public health physician who has been involved in issues related to EMF for a number of years.

7. It is generally accepted within the relevant scientific community and has been established beyond any reasonable doubt that many bioeffects and adverse health effects occur at far lower levels of RF exposure than those that cause measurable heating; some effects are shown to occur at several hundred thousand times below the existing public safety limits, which are set based on the fallacious assumption that there are no adverse health effects at exposures that do not cause easily measureable heating.

8. Exposure to EMF has been linked to a variety of adverse health outcomes. The health endpoints that have been reported to be associated with ELF and/or RF include childhood leukemia, adult brain tumors, childhood brain tumors, genotoxic effects (DNA damage and micronucleation), neurological effects and neurodegenerative disease (like ALS and Alzheimer's), immune system dysregulation, allergic and inflammatory responses, breast cancer in men and women, miscarriage and some cardiovascular effects. The strongest evidence for adverse health effects of EMFs comes from associations observed in human populations with two forms of cancer: childhood leukemia and chronic lymphocytic leukemia in occupationally exposed adults.

9. There is also strong evidence for elevated risk of brain cancer followed long use of cell phones, but only on the side of the head where the cell phone is used regularly.

10. There is suggestive to strongly suggestive evidence that RF exposures may cause changes in cell membrane function, cell communication, metabolism, activation of proto-oncogenes, and can trigger the production of stress proteins at exposure levels below current regulatory limits. Resulting effects can include DNA breaks and chromosome aberrations, cell death including death of brain neurons, increased free radical production, activation of the endogenous opioid system, cell stress and premature aging, changes in brain function including memory loss, retarded learning, performance impairment in children, headaches and fatigue, sleep disorders, neurodegenerative conditions, changes in immune function (allergic and inflammatory responses), reduction in melatonin secretion and cancers.

11. There is also strong and consistent evidence for increased risk of leukemia in individuals who live near to high power AM radio transmission towers. This is particularly relevant because like WI-FI, radio transmission towers give continuous whole body radiation, not just to the head. In addition WI-FI transmitters are indoors, where children may be very close to them.

12. Like second-hand smoke, EMF is a complex mixture, where different frequencies, intensities, durations of exposure(s), modulation, waveform and other factors are known to produce variable effects. *Many years of scientific study has produced substantial evidence that EMF may be considered both carcinogenic and neurotoxic.*

13. Sources of concern include, but are not limited to, power lines, cell and cordless phones, cell towers, Portland Public Schools' WI-FI, WiMax and wireless internet.

14. Based on existing science, many public health experts believe, myself included, that it is possible we will face an epidemic of cancers in the future resulting from uncontrolled use of cell phones and increased population exposure to WI-FI and other wireless devices. Thus it is important that all of us, and especially children, restrict our use of cell phones, and limit exposure to background levels of WI-FI.

15. Children are more vulnerable to RF fields because of the susceptibility of their developing nervous systems. RF penetration is greater relative to head size in children, and they have a greater absorption of RF energy in the tissues of the head at WI-FI frequencies because their skulls are thinner, their brains are smaller, and their brain tissue is more conductive than that of adults since it has a higher water content and ion concentrations. The Presidential Cancer Panel found that children 'are at special risk due to their smaller body mass and rapid physical development, both of which magnify their vulnerability to known carcinogens, including radiation.'

16. The exposure of children to RF has not been studied extensively, although one study from Sweden reports that regular use of a cell phone by children increases risk of development of brain cancer by a factor five times greater than that observed in adults. However, the FCC standards for exposure to radiofrequency radiation are based on the height, weight and stature of a 6-foot tall man, not scaled to children or adults of smaller stature. They do not take into account the unique susceptibility of growing children to exposures. Moreover, there is clear and strong evidence that intensive use of cell phones increases the risk of brain cancer, tumors of the auditory nerve, and cancer of the parotid gland, the salivary gland in the cheek by the ear. WIFI uses similar radiofrequency radiation (1.8-2.5 to 5.0 GHz), although the intensity of exposure in the immediate environment is much lower than what one gets from holding a cell phone close to their head. The difference between a cell phone and a WI-FI environment, however, is that while the cell phone is used only intermittently a WI-FI environment is continuous. In addition WI-FI transmitters are indoors, where children may be very close to them. Because radiation is the same as those for cell phones, there is every reason to assume that the health effects would be the same, varying only in relation to the total dose of radiation. There is evidence from Scandinavian studies of cell phone usage that children who use cell phones are about five times more likely to develop brain cancer than if use starts as an adult. Thus, it is especially important to protect children.

17. There is reason to believe that children are susceptible to the effects of EMF exposure since they are growing, their rate of cellular activity and division is more rapid, and are at more risk for DNA damage and subsequent cancers. Growth and development of the central nervous system is still occurring well into the teenage years so that neurological changes may be of great importance to normal development, cognition, learning, and behavior. Prenatal exposure to EMF has been identified as a risk factor for childhood leukemia. Children are largely unable to remove themselves from exposures to harmful substances in their environments. Their

is involuntary.


18. When WI-FI is installed in a school, children and their parents have no choice but to allow the school to expose themselves/their children. In fact, the children will be exposed to as much as 30-40 hours per week of constant digitally encoded WI-FI signals from each wireless device in the child's vicinity. Based upon a review of the Mount Tabor WI-FI Floor Plan, a given child is subject to direct signals from multiple WI-FI transmitters and rooms full of students transmitting numerous laptop or other wireless signals. There is a major difference between an exposure that an individual chooses to accept and one that is forced on an individual who can do nothing about it, especially a child.

19. In biology and medicine there is nothing that is 100 percent proven. We rely on statistical significance and weight of evidence when drawing conclusions about health effects. When one uses these definitions there is strong scientific evidence for adverse health effects of WI-FI in humans.

20. The evidence for adverse effects of radiofrequency radiation is currently strong (beyond just a known controversy) and grows stronger with each new study. Educating by way of the internet via cabled systems does not increase exposure.

21. Based on a high degree of medical certainty, 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 1st day of June, 2011.


DR. DAVID O. CARPENTER, M.D.
Director, Institute for Health and the Environment
University at Albany