

July 25, 2016

To: Leisure World
Silver Spring, Maryland

I understand that Leisure World is considering the addition of a cell tower on top of a tall building, to raise cellular radiation levels throughout its community so that all locations will receive more reliable cell phone service.

I urge you to reject any plan that would raise cellular radiation levels in Leisure World because of the likely adverse health effects on all residents in the community. Seniors have enough health issues to address without adding to them. The installation of a cell tower in your community would be a tragic mistake, and would be very hard to undo. Even if your community were willing to spend the incredible sums of money on legal fees to have the new cell tower removed, and even if that effort succeeded, you could not undo the health damage caused.

Permit me to introduce myself below and then to present key evidence against exposing humans to cellular radiation.

WHO AM I?

I am a retired U.S. Government career scientist (Ph.D., Applied Physics, Harvard University, 1975). During my Government career, I worked for the Executive Office of the President, the National Science Foundation, and the National Institute of Standards and Technology. For those organizations, respectively, I addressed Federal research and development program evaluation, energy policy research, and measurement development in support of the electronics and electrical-equipment industries and the biomedical research community. I currently interact with other scientists and with physicians around the world on the impact of electromagnetic fields on human health.

EVIDENCE OF HARM

I present below key evidence, and associated references, that argue against the exposure of humans to radiofrequency radiation, and specifically to cellular radiation, which is one type of radiofrequency radiation.

The National Toxicology Program at NIH has demonstrated that cellular radiation causes cancer.

The National Toxicology Program (NTP) at the National Institutes of Health (NIH) has just published the “Partial Findings” of a \$28 million multi-year study of the impact of cellular radiation on health. The NTP study found a causal relationship between cellular radiation and the occurrence of malignant brain cancer (glioma) and benign nerve tumors (schwannomas) of the heart in male rats. This study was requested by the Food and Drug Administration. You can learn more about this study from these references:

Description of NTP study: <http://ntp.niehs.nih.gov/results/areas/cellphones/index.html>

Published “Partial Findings” of the NTP study: <http://biorxiv.org/content/early/2016/05/26/055699>

Informative Discussion of the NTP study: <http://ehtrust.org/science/facts-national-toxicology-program-cellphone-rat-cancer-study>

The NTP regarded its findings as so important to world health that it issued the "Partial Findings" as soon as it could (May 2016) and formally presented those findings at an international conference (BioEM2016, June 2016) attended by 300 scientists from 41 countries.

Reference: <http://www.alphagalileo.org/ViewItem.aspx?ItemId=164837&CultureCode=en>

The International Agency for Research on Cancer at WHO classified radiofrequency radiation as a possible human carcinogen in 2011.

The NTP study reinforces the classification made in 2011, by the International Agency for Research on Cancer (IARC) of the World Health Organization (WHO), of radiofrequency radiation, including specifically cellular radiation ("wireless phone use"), as a Group 2B carcinogen (possible carcinogen for humans) because of the increased risk of malignant brain cancer (glioma) and acoustic neuroma (a benign tumor of the auditory nerve) which is a form of schwannoma.

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

In fact, the findings of the NTP study, in combination with the findings of other studies conducted since 2011, have greatly increased the likelihood that the IARC will raise its classification of radiofrequency radiation to Group 2A (probable carcinogen for humans) or even to Group 1 (known carcinogen for humans) in the near future.

The world's scientists have appealed to the United Nations and the World Health Organization to warn the world population about the harm to health caused by radiofrequency radiation from wireless devices.

220 scientists from 41 nations submitted an international appeal to the United Nations and to the World Health Organization in May 2015. These scientists seek improved protection of the public from harm from the radiation produced by many wireless sources, including "cellular and cordless phones and their base stations, Wi-Fi, broadcast antennas, smart meters, and baby monitors" among others. Together, these scientists have published over 2000 peer-reviewed research papers on this subject.

Reference: <https://www.emfscientist.org/index.php/emf-scientist-appeal>

The most detailed and comprehensive analyses of international biomedical research show a broad variety of adverse health effects from exposure to radiofrequency radiation, including cellular radiation.

The health risks posed by continued expansion of the use of radiofrequency radiation in wireless devices are not limited to cancer, as devastating as that consequence is. The much broader range of health effects was reviewed in immense detail in the BioInitiative Report of 2012. This 1479-page review considered about 1800 biomedical research publications, most issued in the previous five years. The BioInitiative 2012 Report was prepared by an international body of 29 experts, heavy in Ph.D.s and M.D.s, from 10 countries, including the USA which contributed the most experts (10). The report concludes the following:

“The continued rollout of wireless technologies and devices puts global public health at risk from unrestricted wireless commerce unless new, and far lower[,] exposure limits and strong precautionary warnings for their use are implemented.”

Reference: BioInitiative Working Group, Cindy Sage, M.A. and David O. Carpenter, M.D., Editors, BioInitiative Report: A Rationale for Biologically-based Public Exposure Standards for Electromagnetic Radiation, December 31, 2012. (<http://www.bioinitiative.org>)

The current exposure guidelines of the Federal Communications Commission will not protect you.

The current exposure guidelines of the Federal Communications Commission (FCC) are based primarily on a 30-year-old analysis by the National Council on Radiation Protection and Measurements (NCRP), published in 1986, and thus many years before the emergence of most of the digital wireless devices in use today.

Reference: Federal Communications Commission, Office Engineering & Technology, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields, OET Bulletin 65, Edition 97-01, page 64 (August 1997). See the last paragraph on the page to find this statement: “The FCC-adopted limits for Maximum Permissible Exposure (MPE) are generally based on recommended exposure guidelines published by the National Council on Radiation Protection and Measurements (NCRP) in 'Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,' NCRP Report No. 86, Sections 17.4.1, 17.4.1.1, 17.4.2 and 17.4.3. Copyright NCRP, 1986, Bethesda, Maryland 20814....”

(http://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf)

Those exposure guidelines have not been substantially changed since 1986, despite the publication of thousands of archival studies by the world's biomedical scientists that have contributed to our knowledge of the bioeffects from radiofrequency radiation, including cellular radiation, at levels well below the current exposure guidelines. The many health effects that have been found are catalogued and documented in detail in the BioInitiative Report of 2012, described above.

The FCC is not a credible source for exposure guidelines.

The FCC's exposure guidelines are widely considered excessively permissive (that is, much too high to be protective of the public). The FCC exposure guidelines are based on an assumption that the only harm that radiofrequency radiation can cause is due to heating living tissue too much, which has been thoroughly disproved since. In fact, the new study by the National Toxicology program, cited above, disproves that assumption. That study exposed some of the rats to levels below the FCC exposure guidelines, and assured that no significant heating occurred; and the rats still developed brain cancer (glioma) and tumors (schwannomas) of the heart.

Since the exposure guidelines relate to health, it would make more sense for them to be developed by an agency with health expertise, such as the Environmental Protection Agency (EPA). The FCC lacks such health expertise, and sees its mission as assuring capability among electronic systems, and not between electronic systems and human life.

It would also be better for the guidelines to be developed by an agency not so heavily influenced by the wireless industry that it is supposed to regulate. The FCC has acted in partnership with the wireless industries

by permitting wireless radiation levels far higher than the biomedical research literature indicates are necessary to protect human health. The success of the wireless industries in capturing the FCC, the committees in the U.S. Congress that oversee the FCC, and the Executive Branch is detailed in a recent monograph from the Center for Ethics at Harvard University. As an example of that capture, the President recently appointed, as head of the FCC, the former head of the CTIA – The Wireless Association, which is the major lobbying organization for the wireless industry. This is the infamous "revolving door".

Reference: Norm Alster, Captured Agency: How the Federal Communications Commission is Dominated by the Industries It Presumably Regulates (2015)

<http://ethics.harvard.edu/news/new-e-books-edmond-j-safra-research-lab>

Which agencies of the Federal Government, and which medical organizations, dispute the validity of the FCC exposure guidelines?

Both agencies of the U.S. Government, and U.S. medical organizations, have disputed the validity of the thermally based FCC exposure guidelines, indicating that they are outdated and need to be updated to provide adequate protection of human beings, including children and seniors as high-risk groups, as well as other life.

Ironically, the agency that should be entrusted with setting the exposure guidelines -- the Environmental Protection Agency (EPA) -- is often cited as one of the agencies that the FCC has consulted, without ever noting that the EPA has **disputed** the FCC guidelines, as shown below.

Another agency often cited as consulted by the FCC is the Food and Drug Administration (FDA). The FDA, as noted above, is the agency that requested the study by the National Toxicology Program described above. And, as noted above, the NTP study has just demonstrated that the current FCC exposure guidelines are not protective and that their thermal-only basis is invalid.

What follows are key views of U.S. Government agencies, and of U.S. medical organizations, about the inadequacy of the FCC's exposure guidelines.

U.S. Environmental Protection Agency

The limitations of the thermal exposure guidelines of the FCC, and the similar guidelines of private organizations, including the IEEE and the ICNIRP, were described by the Environmental Protection Agency (EPA) in 2002 as follows:

“The FCC’s current exposure guidelines, as well as those of the Institute of Electrical and Electronics Engineers (IEEE) and the International Commission on Non-ionizing Radiation Protection [ICNIRP], are thermally based, and do not apply to chronic, nonthermal exposure situations.... The FCC’s exposure guideline is considered protective of effects arising from a thermal mechanism but not from all possible mechanisms. Therefore, the generalization by many that the guidelines protect human beings from harm by any or all mechanisms is not justified.”

“Federal health and safety agencies have not yet developed policies concerning possible risk from long term, nonthermal exposures. When developing exposure standards for other physical agents such as toxic substances, health risk uncertainties, with emphasis given to sensitive populations, are often considered. Incorporating information on exposure scenarios involving repeated short duration/nonthermal exposures that may continue over very long periods of time (years), with an

exposed population that includes children, the elderly, and people with various debilitating physical and medical conditions, could be beneficial in delineating appropriate protective exposure guidelines.”

Reference: Letter from Frank Marcinowski, Director, Radiation Protection Division, EPA, and Norbert Hankin, Center for Science and Risk Assessment, Radiation Protection Division, EPA, to Janet Newton, President, the EMR Network, with copies to the FCC and the IEEE, and dated July 16, 2002. (http://www.emrpolicy.org/litigation/case_law/docs/noi_epa_response.pdf)

So, the EPA explains above the following: (1) the FCC thermal exposure guidelines do NOT protect against all harm, only the harm caused by too much heating; (2) the FCC thermal exposure guidelines do not apply to “chronic, nonthermal exposure”, which is the type of exposure generated by the cell towers and many other wireless devices; and (3) when new FCC guidelines are developed for chronic nonthermal exposures, they must accommodate "children, the elderly, and people with various debilitating physical and medical conditions" because those groups are not accommodated now.

U.S. Department of the Interior

The limitations of the FCC thermal exposure guidelines were described in a different way by the U.S. Department of the Interior (Fish and Wildlife Service) in 2014. The Interior Department was motivated principally by multiple adverse effects of radiation on the health, and the life, of birds, particularly in connection with cell towers.

“However, the electromagnetic radiation standards used by the Federal Communications Commission (FCC) continue to be based on thermal heating, a criterion now nearly 30 years out of date and inapplicable today.”

Reference: Letter from Willie R. Taylor, Director, Office of Environmental Policy and Compliance, Office of the Secretary, United States Department of the Interior to Mr. Eli Veenendaal National Telecommunications and Information Administration U.S. Department of Commerce, dated February 7, 2014. (https://www.ntia.doc.gov/files/ntia/us_doi_comments.pdf)

American Academy of Environmental Medicine

The American Academy of Environmental Medicine (AAEM), which trains physicians in preparation for Board Certification in Environmental Medicine, states the following:

“The AAEM strongly supports the use of wired Internet connections, and encourages avoidance of radiofrequency such as from WiFi, cellular and mobile phones and towers, and ‘smart meters’.”

"The peer reviewed, scientific literature demonstrates the correlation between RF [radiofrequency] exposure and neurological, cardiac, and pulmonary disease as well as reproductive and developmental disorders, immune dysfunction, cancer and other health conditions. The evidence is irrefutable."

“To install WiFi in schools plus public spaces risks a widespread public health hazard that the medical system is not yet prepared to address.”

Reference: American Academy of Environmental Medicine, Wireless Radiofrequency Radiation in Schools, November 14, 2013.

(<http://www.aemonline.org/pdf/WiredSchools.pdf>)

American Academy of Pediatrics

The American Academy of Pediatrics (AAP), whose 60,000 doctors care for our children, supports the development of more restrictive standards for radiofrequency radiation exposure that would better protect the public, particularly the children. The AAP, in a letter to the Federal Communications Commission (FCC) and the Food and Drug Administration (FDA), dated August 29, 2013, states that the following:

“Children are not little adults and are disproportionately impacted by all environmental exposures, including cell phone radiation. Current FCC standards do not account for the unique vulnerability and use patterns specific to pregnant women and children. It is essential that any new standard for cell phones or other wireless devices be based on protecting the youngest and most vulnerable populations to ensure they are safeguarded throughout their lifetimes.”

Reference: American Academy of Pediatrics, letter dated August 29, 2013 addressed to The Honorable Mignon L. Clyburn, Acting Commissioner, Federal Communications Commission and The Honorable Dr. Margaret A. Hamburg, Commissioner, U.S. Food and Drug Administration.

(<http://apps.fcc.gov/ecfs/document/view?id=7520941318>)

What would be a better direction for Leisure World?

Rather than promoting **increasing** the radiation levels within Leisure World, by adding a cell tower right inside its community, Leisure World would do better to promote **decreasing** radiation levels in its community. The Leisure World Technical Committee could be a positive force in such a reduction by advising residents on how to reduce those radiation levels. Steps in this desirable direction would include encouraging residents:

- to minimize cell phone use, by reserving cell phones for emergencies, such as when on the road
- to replace cordless telephones with corded telephones
- to turn off the Wi-Fi capability of Internet routers and to establish instead wired (Ethernet) connections to their supported devices
- to opt out of wireless Smart Meters already on their residences, a right already won for all Marylanders
- to use their honored position in their families to alert their **children and grandchildren** to the risks of wireless devices to health, so that they can have a better chance at a healthy life.

Seniors, beyond making their own residences safer, can contribute mightily to the hundreds of organizations springing up across the United States to raise awareness about the health risks of radiation exposure from wireless devices in homes, in schools, and in the workplace. Today's seniors escaped such excessive exposure when they were children, but today's children are not as lucky. Many will be made sick and many will die from such exposure while still young adults. Our children and grandchildren need to be helped, not abandoned to the current exponential rise of radiation levels caused by the rapid and thoughtless expansion of wireless technology, whatever the appeal of that technology on other grounds. **You can help.**

Regards,

Ron Powell

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