309, 310, 312

commerce wholly within the District of Columbia or any possession of the United States.

(2) The term "United States" means the several States, the District of Columbia, the Commonwealth of Puerto Rico, and the possessions of the United States, but does not include the Canal Zone.

SEC. 331. [47 U.S.C. 331] VERY HIGH FREQUENCY STATIONS AND AM RADIO STATIONS.

(a) VERY HIGH FREQUENCY STATIONS.-- It shall be the policy of the Federal Communications Commission to allocate channels for very high frequency commercial television broadcasting in a manner which ensures that not less than one such channel shall be allocated to each State, if technically feasible. In any case in which licensee of a very high frequency commercial television broadcast station notifies the Commission to the effect that such licensee will agree to the reallocation of its channel to a community within a State in which there is allocated no very high frequency commercial television broadcast channel at the time such notification, the Commission shall, not withstanding any other provision of law, order such reallocation and issue a license to such licensee for that purpose pursuant to such notification for a term of not to exceed 5 years as provided in section 307(d) of the Communications Act of 1934.

(b) AM RADIO STATIONS.--It shall be the policy of the Commission, in any case in which the licensee of an existing AM daytime-only station located in a community with a population of more than 100,000 persons that lacks a local full-time aural station licensed to that community and that is located within a Class I station primary service area notifies the Commission that such licensee seeks to provide full-time service, to ensure that such a licensee is able to place a principal community contour signal over its entire community of license 24 hours a day, if technically feasible. The Commission shall report to the appropriate committees of Congress within 30 days after the date of enactment of this Act on how it intends to meet this policy goal.

SEC. 332. [47 U.S.C. 332] MOBILE SERVICES.

(a) In taking actions to manage the spectrum to be made available for use by the private mobile service, the Commission shall consider, consitent with section 1 of this Act, whether such actions will_

(1) promote the safety of life and property;

(2) improve the efficiency of spectrum use and reduce the regulatory burden upon spectrum users, based upon sound engineering principles, user operational requirements, and marketplace demands;

(3) encourage competition and provide services to the largest feasible number of users; or

(4) increase interservice sharing opportunities between private

mobile services and other services.

(b)(1) The Commission, in coordinating the assignment of frequencies to stations in the private mobile services and in the fixed services (as defined by the Commission by rule), shall have authority to utilize assistance furnished by advisory coordinating committees consisting of individuals who are not officers or employees of the Federal Government.

(2) The authority of the Commission established in this subsection shall not be subject to or affected by the provisions of part III of title 5, United States Code, or section 3679(b) of the Revised Statutes (31 U.S.C. 665(b)).

(3) Any person who provides assistance to the Commission under this subsection shall not be considered, by reason of having provided such assistance, a Federal employee.

(4) Any advisory coordinating committee which furnishes assistance to the Commission under this subsection shall not be subject to the provisions of the Federal Advisory Committee Act.

(c) REGULATORY TREATMENT OF MOBILE SERVICES.--

(1) COMMON CARRIER TREATMENT OF COMMERCIAL MOBILE SERVICES.--(A) A person engaged in the provision of a service that is a commercial mobile service shall, insofar as such person is so engaged, be treated as a common carrier for purposes of this Act, except for such provisions of title II as the Commission may specify by regulation as inapplicable to that service or person. In prescribing or amending any such regulation, the Commission may not specify any provision of section 201, 202, or 208, and may specify any other provision only if the Commission determines that--

(i) enforcement of such provision is not necessary in order to ensure that the charges, practices, classifications, or regulations for or in connection with that service are just and reasonable and are not unjustly or unreasonably discriminatory;

(ii) enforcement of such provision is not necessary for the protection of consumers; and

(iii) specifying such provision is consistent with the public interest.

(B) Upon reasonable request of any person providing commercial mobile service, the Commission shall order a common carrier to establish physical connections with such service pursuant to the provisions of section 201 of this Act. Except to the extent that the Commission is required to respond to such a request, this subparagraph shall not be construed as a limitation or expansion of the Commission's authority to order interconnection pursuant to this Act.

(C) The Commission shall review competitive market conditions with respect to commercial mobile services and shall include in its annual

report an analysis of those conditions. Such analysis shall include an identification of the number of competitors in various commercial mobile services, an analysis of whether or not there is effective competition, an analysis of whether any of such competitors have a dominant share of the market for such services, and a statement of whether additional providers or classes of providers in those services would be likely to enhance competition. As a part of making a determination with respect to the public interest under subparagraph (A)(iii), the Commission shall consider whether the proposed regulation (or amendment thereof) will promote competitive market conditions, including the extent to which such regulation (or amendment) will enhance competition among providers of commercial mobile services. If the Commission determines that such regulation (or amendment) will promote competition among providers of commercial mobile services, such determination may be the basis for a Commission finding that such regulation (or amendment) is in the public interest.

(D) The Commission shall, not later than 180 days after the date of enactment of this subparagraph, complete a rulemaking required to implement this paragraph with respect to the licensing of personal communications services, including making any determinations required by subparagraph (C).

(2) NON-COMMON CARRIER TREATMENT OF PRIVATE MOBILE SERVICES.--A person engaged in the provision of a service that is a private mobile service shall not, insofar as such person is so engaged, be treated as a common carrier for any purpose under this Act. A common carrier (other than a person that was treated as a provider of a private land mobile service prior to the enactment of the Omnibus Budget Reconciliation Act of 1993) shall not provide any dispatch service on any frequency allocated for common carrier service, except to the extent such dispatch service is provided on stations licensed in the domestic public land mobile radio service before January 1, 1982. The Commission may by regulation terminate, in whole or in part, the prohibition contained in the preceding sentence if the Commission determines that such termination will serve the public interest.

(3) STATE PREEMPTION.--(A) Notwithstanding sections 2(b) and 221(b), no State or local government shall have any authority to regulate the entry of or the rates charged by any commercial mobile service or any private mobile service, except that this paragraph shall not prohibit a State from regulating the other terms and conditions of commercial mobile services. Nothing in this subparagraph shall exempt providers of commercial mobile services (where such services are a substitute for land line telephone exchange service for a substantial portion of the

communications within such State) from requirements imposed by a State commission on all providers of telecommunications services necessary to ensure the universal availability of telecommunications service at affordable rates. Notwithstanding the first sentence of this subparagraph, a State may petition the Commission for authority to regulate the rates for any commercial mobile service and the Commission shall grant such petition if such State demonstrates that--

(i) market conditions with respect to such services fail to protect subscribers adequately from unjust and unreasonable rates or rates that are unjustly or unreasonably discriminatory; or

(ii) such market conditions exist and such service is a replacement for land line telephone exchange service for a substantial portion of the telephone land line exchange service within such State.

The Commission shall provide reasonable opportunity for public comment in response to such petition, and shall, within 9 months after the date of its submission, grant or deny such petition. If the Commission grants such petition, the Commission shall authorize the State to exercise under State law such authority over rates, for such periods of time, as the Commission deems necessary to ensure that such rates are just and reasonable and not unjustly or unreasonably discriminatory.

(B) If a State has in effect on June 1, 1993, any regulation concerning the rates for any commercial mobile service offered in such State on such date, such State may, no later than 1 year after the date of enactment of the Omnibus Budget Reconciliation Act of 1993, petition the Commission requesting that the State be authorized to continue exercising authority over such rates. If a State files such a petition, the State's existing regulation shall, notwithstanding subparagraph (A), remain in effect until the Commission completes all action (including any reconsideration) on such petition. The Commission shall review such petition in accordance with the procedures established in such subparagraph, shall complete all action (including any reconsideration) within 12 months after such petition is filed, and shall grant such petition if the State satisfies the showing required under subparagraph (A)(i) or (A)(ii). If the Commission grants such petition, the Commission shall authorize the State to exercise under State law such authority over rates, for such period of time, as the Commission deems necessary to ensure that such rates are just and reasonable and not unjustly or unreasonably discriminatory. After a reasonable period of time, as determined by the Commission, has elapsed from the issuance of an order under subparagraph (A) or this subparagraph, any interested party may petition the Commission for an order that the exercise of authority by a State pursuant to such subparagraph is no longer

necessary to ensure that the rates for commercial mobile services are just and reasonable and not unjustly or unreasonably discriminatory. The Commission shall provide reasonable opportunity for public comment in response to such petition, and shall, within 9 months after the date of its submission, grant or deny such petition in whole or in part.

(4) REGULATORY TREATMENT OF COMMUNICATIONS SATELLITE CORPORATION.--Nothing in this subsection shall be construed to alter or affect the regulatory treatment required by title IV of the Communications Satellite Act of 1962 of the corporation authorized by title III of such Act.

(5) SPACE SEGMENT CAPACITY.--Nothing in this section shall prohibit the Commission from continuing to determine whether the provision of space segment capacity by satellite systems to providers of commercial mobile services shall be treated as common carriage.

(6) FOREIGN OWNERSHIP.--The Commission, upon a petition for waiver filed within 6 months after the date of enactment of the Omnibus Budget Reconciliation Act of 1993, may waive the application of section 310(b) to any foreign ownership that lawfully existed before May 24, 1993, of any provider of a private land mobile service that will be treated as a common carrier as a result of the enactment of the Omnibus Budget Reconciliation Act of 1993, but only upon the following conditions:

(A) The extent of foreign ownership interest shall not be increased above the extent which existed on May 24, 1993.

(B) Such waiver shall not permit the subsequent transfer of ownership to any other person in violation of section 310(b).

(7) PRESERVATION OF LOCAL ZONING AUTHORITY.--

(A) GENERAL AUTHORITY.--Except as provided in this paragraph, nothing in this Act shall limit or affect the authority of a State or local government or instrumentality thereof over decisions regarding the placement, construction, and modification of personal wireless service facilities.

(B) LIMITATIONS.--

(i) The regulation of the placement, construction, and modification of personal wireless service facilities by any State or local government or instrumentality thereof--

(I) shall not unreasonably discriminate among providers of functionally equivalent services; and

(II) shall not prohibit or have the effect of prohibiting the provision of personal wireless services.

(ii) A State or local government or instrumentality thereof shall act on any request for authorization to place,

construct, or modify personal wireless service facilities within a reasonable period of time after the request is duly filed with such government or instrumentality, taking into account the nature and scope of such request.

(iii) Any decision by a State or local government or instrumentality thereof to deny a request to place, construct, or modify personal wireless service facilities shall be in writing and supported by substantial evidence contained in a written record.

(iv) No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions.

(v) Any person adversely affected by any final action or failure to act by a State or local government or any instrumentality thereof that is inconsistent with this subparagraph may, within 30 days after such action or failure to act, commence an action in any court of competent jurisdiction. The court shall hear and decide such action on an expedited basis. Any person adversely affected by an act or failure to act by a State or local government or any instrumentality thereof that is inconsistent with clause (iv) may petition the Commission for relief.

(C) DEFINITIONS.--For purposes of this paragraph--

(i) the term "personal wireless services" means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services;

(ii) the term "personal wireless service facilities" means facilities for the provision of personal wireless services; and

(iii) the term "unlicensed wireless service" means the offering of telecommunications services using duly authorized devices which do not require individual licenses, but does not mean the provision of direct-to-home satellite services (as defined in section 303(v)).

(8) MOBILE SERVICES ACCESS.--A person engaged in the provision of commercial mobile services, insofar as such person is so engaged, shall not be required to provide equal access to common carriers for the provision of telephone toll services. If the Commission determines that subscribers to such services are denied access to the provider of telephone

toll services of the subscribers' choice, and that such denial is contrary to the public interest, convenience, and necessity, then the Commission shall prescribe regulations to afford subscribers unblocked access to the provider of telephone toll services of the subscribers' choice through the use of a carrier identification code assigned to such provider or other mechanism. The requirements for unblocking shall not apply to mobile satellite services unless the Commission finds it to be in the public interest to apply such requirements to such services.

(d) DEFINITIONS.--For purposes of this section--

(1) the term "commercial mobile service" means any mobile service (as defined in section 3) that is provided for profit and makes interconnected service available (A) to the public or (B) to such classes of eligible users as to be effectively available to a substantial portion of the public, as specified by regulation by the Commission;

(2) the term "interconnected service" means service that is interconnected with the public switched network (as such terms are defined by regulation by the Commission) or service for which a request for interconnection is pending pursuant to subsection (c)(1)(B); and

(3) the term "private mobile service" means any mobile service (as defined in section 3) that is not a commercial mobile service or the functional equivalent of a commercial mobile service, as specified by regulation by the Commission.

SEC. 333. [47 U.C.S. 333] WILLFUL OR MALICIOUS INTERFERENCE.

No person shall willfully or maliciously interfere with or cause interference to any radio communications of any station licensed or authorized by or under this Act or operated by the United States Government.

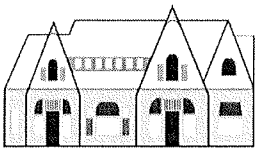
SEC. 334. [47 U.C.S. 334] LIMITATION ON REVISION OF EQUAL EMPLOYMENT OPPORTUNITY REGULATIONS.

(a) LIMITATION.--Except as specifically provided in this section, the Commission shall not revise--

(1) the regulations concerning equal employment opportunity as in effect on September 1, 1992 (47 C.F.R. 73.2080) as such regulations apply to television broadcast station licensees and permittees; or

(2) the forms used by such licensees and permittees to report pertinent employment data to the Commission.

(b) MIDTERM REVIEW.--The Commission shall revise the regulations described in subsection (a) to require a midterm review of television broadcast station licensees' employment practices and to require the Commission to inform such licensees of necessary improvements in recruitment practices identified as a consequence of such review.



Beaumont-Wilshire Neighborhood Association

RESOLUTION PASSED AT SPECIAL GENERAL MEETING, JANUARY 28, 2010

Residents of the Beaumont-Wilshire Neighborhood met in the Beaumont Middle School library and voted by a margin of 46-1 to approve the following resolution regarding Clearwire's proposal for a wireless facility in the neighborhood:

Whereas, Fremont Street is a Priority 4 residential street for purposes of locating wireless facilities and requires a finding that no other less intrusive site is possible. We are not convinced that Clearwire has performed its due diligence and met that burden of proof; and

Whereas, Clearwire's equipment cabinets are noisy and the company is slow to address violations of the city noise ordinance in other neighborhoods. This cabinet would be even closer to single-family homes than other locations where this has been a continuing problem; and

Whereas, the health, safety, and peace of mind of Beaumont-Wilshire residents and the livability of the neighborhood are fundamental concerns of the Neighborhood Association; and

Whereas, the Portland City Council has expressed concerns about the health impact of wireless facilities and unanimously passed Resolution 36706 calling on federal agencies for more study into the potential health impacts of RF wireless emissions; and

Whereas, the site selection and approval process unduly restricts neighbors from a formal opportunity to comment on or influence the location;

Now, therefore, be it resolved that the Beaumont-Wilshire Neighborhood Association opposes Clearwire's plans for a wireless tower on Northeast Fremont Street near 37th Avenue or any Priority 4 residential street and recommends that the City of Portland Reject the company's request for a tower and adjacent equipment cabinet.

Respectfully submitted,

Al Ellis
President of the Beaumont-Wilshire Neighborhood Association
503-287-0477
president@bwna.us

From: Colin O'Neill <colin@colinoneill.net>
Subject:
Date: March 9, 2010 4:31:36 PM PST

From: CWoodruff@aol.com
Date: February 1, 2010 10:11:13 AM PST
To: colin@colinoneill.net
Subject: Re: Cell tower at Wilshire Deli

Hi Collin,
Sorry it took so long for me to get back to you but after I got your email I drove by the one at the Methodist Church (even though I know it is described as much uglier than the one that will be installed at the market) and then tried the 55th and Burnside location for the exact match. I was unable to locate that one so I cant give a truly educated opinion. Was I searching in the wrong spot?

At any rate I agree that (just as the neighborhood residents think) the tower will be an eye and earsore. Potential buyers of homes that are immediately adjacent to the tower and ground equipment are likely to cite the proximity as a reason to prefer another home.

I sent you a listing that will come to you from RMLSweb with the tag line "links to listings". It is a home on 21st and Skidmore by the two big green water towers and a small substation. It is the only home that comes immediately to mind with ugly utilities obviously effecting the ambiance of the property. I spoke to the agent who had it listed in 2007 because I remember at the time that the home was atypically slow in selling. He said that in the brisk market he priced it 10% below the comps he saw at the time, and they accepted $10,000 below list price in a market where that was unusual.

My best opinion without seeing the tower's twin:
In a good strong seller's market nonconforming features (busy road, bad staircase, proximity to commercial, etc.) have less of an impact than they do in the strong Buyer's market that we are now experiencing. In my opinion your hit would be between 10-20%, and your market timing would be significantly extended. As an example if comparable sales without the tower in the neighborhood placed the market value of your home at $500,000, with the tower it would be $400,000 -- $450,000 and if the market is moving at about 140 days, you might see yourself on the market for upwards of 175 days.

Warmest regards,

Cathleen Woodruff

Real Estate Broker, GRI
Energy Star Broker
Windermere CCRGI
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Portland, Oregon 97232
Cell: 503-830-8270
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The Ecologist

The DEC/JAN 2008 issue of The Ecologist magazine, the world's most respected environmental affairs magazine, recently carried a report on the health impacts of Wi-Fi transmissions. The following peer-reviewed studies on health effects from cell towers ("mobile phone masts" in U.K. parlance) and other sources of RF radiation were included in the report.

- Santini et al., 2002: 530 people living near to mobile phone masts reported more symptoms of headache, sleep disturbance, discomfort, irritability, depression, memory loss, and concentration problems the closer they lived to the mast.
- Oberfeld et al., 2004: 97 people living near to mobile phone masts reported more symptoms of fatigue, irritability, headaches, nausea, loss of memory, visual disorder, dizziness and cardiovascular problems the higher their level of microwave exposure.
- Eger et al., 2004: A three-fold increase in the incidence of malignant tumours was found after 5 years exposure in people living 400 metres from a mobile phone mast.
- Wolf & Wolf, 2004: A four-fold increase in the incidence of cancer among residents living near a mobile phone mast for between 3 and 7 years was detected.
- REFLEX, 2004: A four year study on human cells found that, after exposure to low-power microwaves, the cells showed signs of DNA damage and mutations which were passed on to the next generation.
- Abdel-Rassoul, 2007: Residents living under and opposite a long-established mobile phone mast in Egypt reported significantly higher occurrences of headaches, memory changes, dizziness, tremors, depressive symptoms and sleep disturbance than a control group.
- Bortkiewicz et al., 2004: Residents close to mobile phone masts report more incidences of circulatory problems, sleep disturbances, irritability, depression, blurred vision, and concentration difficulties the nearer they live to the mast.
- Hutter et al., 2006: 365 people living near to mobile phone masts reported higher incidences of headaches the greater the closer they lived to the masts.
- Stewart report, 2000: Research conducted by HPA [Health Protection Agency, UK] chief William Stewart advised that the main beam of a mobile phone mast should not be allowed to fall on any part of a school's grounds.
- Hecht & Balzer, 1997: A huge review of studies which concluded a vast array of health effects, including insomnia, changes in brain-wave activity, cardiovascular problems and increased susceptibility to infections.

- Carpenter & Sage, 2007: Conclude that an outdoor maximum exposure limit of 0.6 V/m should be set, and that Wi-Fi systems should be replaced with wired alternatives
- ECOLOG-Institut, 2000: Found evidence for increases in immune system damage, central nervous system damage, and reduced cognitive function. Recommends an exposure limit 1000 times lower than current guidelines.
- Kolodynski & Kolodynska, 1999: School children living near a radio location station in Latvia suffered reduced motor function, memory and attention spans.

Cellphone Games

Does radio frequency radiation pose a cancer risk? Researchers in the largest study to date won't say

by Melinda Wenner

http://www.walrusmagazine.com/articles/2008.09-health-cellphone-brain-tumour-melinda-wenner/1/

Daniel Shattuck calls himself a soldier, and you might assume as much from his shaved head and six-foot, 210-pound frame. But he's never been in the armed forces. Instead, Shattuck has been reluctantly drafted to fight against something in his own body: a malignant brain tumour. "To me, it's a war," he says. "I'm at war with this thing every day."

Although Shattuck doesn't know for sure what caused his tumour — he's asked his doctor "a thousand times" but says he's never received a clear answer — he certainly has a theory: he worked as an operator and then as a technician for a phone company for thirteen years, and regularly used a cellphone for a good ten of them. Three of his former co-workers also have malignant brain tumours, and he suspects their cellphone use, too, is to blame.

Shattuck isn't alone in worrying about the effects of the devices. In May, speculation swirled that Massachusetts senator Edward Kennedy's brain cancer was linked to habitual cellphone use. Picking up on the rumours, cnn's *Larry King Live* devoted a show to the subject. On it, the neurosurgeon who treated US attorney Johnnie Cochran's brain tumour in 2005 said he would not rule out a link between cellphones and cancer. An issue that won't go away had resurfaced, and concern over cellphones causing or contributing to brain tumours went mainstream again.

The wireless industry adamantly denies the association. "The overwhelming majority of studies that have been published in scientific journals around the globe show that wireless phones do not pose a health risk," says a spokesperson for the ctia, a heavyweight international organization that represents the trillion-dollar wireless industry. Many scientists agree: the literature shows little evidence of a problem.

But what if the published science doesn't reflect what's really happening out there? And what if there has been a concerted effort to shield us from the evidence that does exist? Accounts from a handful of well-respected scientists suggest that since the mid-1990s wireless companies have been doing their best to bury worrying findings, discredit researchers who publish them, and design experiments that

virtually guarantee the desired results. "Biological effects are undoubtedly there, no question, and it's a canard to suggest that they're not," says Abe Liboff, a research professor at Florida Atlantic University, and co-editor of the journal *Electromagnetic Biology and Medicine*. The cellphone industry, he insists, "will use any excuse to avoid the truth."

Even so, a new possibility is emerging. Although cellphones appear to be safe when used sporadically, individuals who use them frequently for more than a decade may be vulnerable. Eight population-based studies published since 1999 indicate that heavy users are twice as likely to develop certain types of brain tumours as infrequent users. Citing recall bias and memory loss on the subjects' parts, critics reject such suggestions. Still, since cancer often takes decades to develop, other scientists wonder whether these findings are the first faint whispers of a public health crisis. After all, with an estimated three billion users around the world, cellphones have become ubiquitous.

In 1995, Jerry Phillips, a biochemist at the Pettis Veterans Affairs Medical Center in Loma Linda, California, received a call from the head of his biomedical research group. He and his co-workers were doing contract work for Motorola and the US Department of Energy on the effects of electromagnetic radiation, and Motorola, he says, needed a favour: higher-ups had learned of a study just published by University of Washington scientists Henry Lai and N. P. Singh showing that radio frequency fields similar to those emitted by cellphones damaged rats' brain cells, breaking their dna structures after just two hours of exposure. The company, Phillips says, wanted to discredit the study.

To Motorola, it didn't make sense that a cellphone could break dna. The ionizing radiation of X-rays and atomic bombs has enough energy to knock around electrons and cause genetic damage. But the radiation emitted by cellphones is non-ionizing, similar to radar, and thought to be too weak to do genetic harm. That is, while cellphone radiation fits within the microwave spectrum, it emits too little energy to significantly heat tissue. So how could cellphones, Motorola's reasoning went, possibly affect or harm the brain?

Nonetheless, Lai's research suggested they could, and his paper worried Motorola. Phillips recalls that the company asked him to "find ways to put a spin on it that was favourable to them and less favourable to Henry and N. P." He declined, but did agree to provide Motorola with comments on the study, and to conduct a similar trial if they were interested.

They were. Phillips designed a comparable experiment to investigate how radiation emitted by cellphones affected dna in cells. He tested two slightly different radiation frequencies and exposure times, and found that in both cases the radiation did affect the cells' dna, albeit in significantly different ways: sometimes it increased the base level of dna damage typically seen in cells, and sometimes it lowered it. He wrote a report and sent it to Motorola with a note saying he wanted to publish the results and, if the company would fund him, design studies to further investigate his findings. A few days later, Mays Swicord, the director of electromagnetic research at Motorola, called him.

"He started questioning a lot of the results, pointing to what he called 'inconsistencies in data,'" Phillips

recalls. "I pointed out that it's not unusual to see, with a single chemical agent, results go in one direction for one time period, and in the opposite direction for another." Phillips went on to explain to Swicord that long or heavy exposure to a toxin can initiate a cell's repair mechanisms, immediately fixing the damage. A shorter or lighter exposure might cause damage, but not enough to trigger the same repair mechanisms. In this manner, paradoxically, the lighter dose might be more dangerous.

Swicord, who has a background in bioelectromagnetics, wasn't convinced. "He suggested that I consider not publishing anything and that I do more work," Phillips says. "And I said no. I know when the project is done. I've been doing research for twenty-five years."

Their argument went on for weeks. Eventually, says Phillips, the head of his research group, Ross Adey, phoned him. Apparently under a lot of pressure, and worried that his group might lose Motorola's financial support if he didn't cooperate, Adey, says Phillips, "told me that if I didn't give Motorola what they wanted, it could be detrimental to my career." Phillips wouldn't back down. "This isn't about the group. It isn't about money," he told Adey. "It's about science."

Phillips refused to work on any further Motorola-funded projects, and in 1998, in the peer-reviewed journal *Bioelectrochemistry and Bioenergetics*, he published his dna study, which would be one of his last. That same year, the Department of Energy stopped funding the group's work on electromagnetic radiation effects. Phillips left Loma Linda and moved to Colorado Springs. Today he's the director of the Science/ Health Science Learning Center at the University of Colorado.

Lai, the soft-spoken University of Washington scientist who published the study that inspired Phillips' research, has also felt outside pressure. In a 1994 Motorola memo — obtained and published by the New York–based Microwave News — a corporate communications employee discussed how the company could discredit Lai's findings. The memo concludes, "I think that we have sufficiently war-gamed the Lai-Singh issue, assuming the Scientific Advisory Group and ctia have done their homework."

Shortly thereafter, an anonymous call was made to the National Institutes of Health, the agency funding Lai's work. The person charged that Lai was performing experiments outside the scope of his grant. The nih looked into the allegation but told Lai to continue his research. Then, he says, the scientific advisory group created by ctia to manage $25 million (US) in industry-donated research money sent a letter to the president of the University of Washington demanding that Lai and Singh both be fired. Lai wasn't, but soon after, all non-industry funding for related research dried up in the US. Like Phillips, he left the field.

Swicord, now semi-retired, admitted in an interview that he asked Phillips to collect more data, but insisted that Motorola eventually encouraged him to publish his findings. Similarly, the Motorola spokesperson acknowledged the "war game" memo, but told me that the company and the wireless industry in general have "demonstrated a strong commitment to high- quality research in the area of the safety of radio waves."

The industry has indeed funded a number of trials on the potential effects of cellphone radiation, but the results of those studies differ markedly from those funded by the government or other public agencies. In short, industry-funded research tends to show no cause for concern; the findings of other studies suggest a need for precaution.

In a paper published last year in *Environmental Health Perspectives*, Swiss researchers reported that of the studies published between 1995 and 2005, which investigated whether controlled exposure to radio frequency radiation affected humans, 82 percent of those funded by public agencies, and 71 percent of those funded by a combination of industry and public money, reported that there were effects; only 33 percent of the solely industry-funded studies did. The authors point out that scientists funded by public agencies may have an interest in finding a response in order to secure additional funding, but Lai doesn't buy this argument. Having shifted his research focus to finding cancer cures, he still follows the literature on cellphones, and has done his own analysis of 336 published papers. Industry-funded studies, he says, are roughly twice as likely as government-funded ones to conclude that cellphones are harmless. Phillips is also convinced that the industry either cherry-picks its data or designs studies to show nothing. "A lot of the studies that are done right now are done purely as PR tools for the industry," he says.

Recent epidemiological (population-based) studies comparing the cellphone habits of people with brain tumours to healthy individuals suggest that the frequency — and length — of use may indeed play a role in tumour development. "There's no indication, for people who use their phones for less than ten years, of an association between mobile phone use and these particular cancers," says Lawrie Challis, former chairman of the UK's Mobile Telecommunications and Health Research Programme. But "knowing what happens in the short term tells you nothing about what happens in the long term."

Indeed, of thirteen epidemiological studies published since 1999 on cellphone use for more than ten years, eight suggest a two- to threefold risk increase.

Just the same, it's hard to publish convincing results from studies like these. For one thing, cellphones have only been popular for a decade or so, making it difficult to find enough subjects who've used them for long periods of time. Add to this the fact that brain tumours are rare, and it becomes almost impossible to produce data that show definitive statistics. Of the eight epidemiological studies that suggest a positive association, for instance, only three are large enough to be considered "statistically significant."

One way to circumvent these problems and acquire enough reliable data is to pool results from multiple trials. This is the idea behind Interphone, the largest study of its kind to date, coordinated by the International Agency for Research on Cancer in Lyons, France. Led by Canadian scientist Elisabeth Cardis, the project has analyzed some 6,400 tumours in thirteen countries. Here, too, however, mystery abounds. While results from some of the individual countries have been published, the pooled results —

scheduled for release in 2006 — have not; Cardis says, "The interpretation isn't clear." In the January/ February issue of *Microwave News*, editor Louis Slesin writes, "The code of silence about Interphone must end. Public health demands it."

Early this year, Siegal Sadetzki, a scientist at the Chaim Sheba Medical Center in Israel, and a participant in the Interphone study, published her country's arm of the findings. Their report suggests that heavy cellphone users have a 50 percent increased risk of developing parotid gland tumours near the side of the head against which they hold their phones. "Significant risk is shown, and we should take this into consideration, because this technology is really, really, really prevalent," she says.

While Sadetzki advocates caution (noting "usually it takes a long time to develop solid cancers; ten years is really only the minimum"), others maintain that a two- or threefold increase actually does not represent a large overall risk. Malignant brain tumours are rare — about one in 14,000 North Americans is diagnosed with one each year — and even a doubling of the risk for individuals who use cellphones for a decade means only about one in 7,000 people. But what about those who use cellphones for thirty years, or kids who start using them when they're eight? No one knows.

Clearly, epidemiological studies in which scientists monitor the health and cellphone habits of large groups of people over extended periods of time are required. Properly constructed, such studies would solve problems of memory loss, recall bias, and other research-related challenges.

If the debate over whether cellphones are harmful is controversial, *how* they might be is even more so. Because cellphone radiation can't knock around electrons enough to cause dna damage or heat tissue, its biological effects are probably due to something heat independent or "non-thermal." However, no one knows yet how the radiation could do this, and many dispute that it does. Of the approximately 400 laboratory studies that have investigated whether exposure to radio frequency radiation affects dna in cells and/or animals, only about half report any effects.

Leif Salford, chair of neurosurgery at Lund University in Sweden, has repeatedly shown that exposure to two hours of cellphone radiation opens the bloodbrain barrier and causes brain-cell damage in rats. Other studies have shown that radiation affects biological pathways important for metabolism and stress responses. But what does this have to do with cancer? Although cellphone radiation, unlike uranium or plutonium, may not be powerful enough to cause tumours directly, it might, as Jerry Phillips suggests, indirectly lead to cancer by preventing dna repair mechanisms from working properly, and by producing free radicals, highly reactive molecules that can interact with dna in cancer-causing ways.

It may also be that cellphones don't seed new tumours, but instead promote or accelerate the growth of existing ones. In other words, cellphone radiation could be what is called a "tumour promoter," which would require less energy than tumour initiation. (Also, as people are already being bombarded by dozens of known environmental carcinogens, something that helps cancers grow is potentially a big problem.) In the first study Phillips conducted for Motorola, he used a chemical to make a tiny tumour and then looked at how radio frequency fields influenced its growth. "It did appear that these fields

could affect already initiated tumours," he says. According to University of Massachusetts Amherst toxicologist Edward Calabrese, animals and cells respond differently and inconsistently to low-level toxic exposures, so varied findings are not surprising. At low levels, he says, the way a body reacts to exposures can be counterintuitive, just as in Phillips' experiment, where low exposures appeared to cause more damage than higher ones.

Probing these issues requires funding, but outside of the Interphone study interest seems to be flagging. The US government, which didn't participate in Interphone, has not announced any plans to fund epidemiological studies. The National Toxicology Program has provided $22 million (US) for a series of trials to be performed at the Illinois Institute of Technology, but these animal studies will investigate only whether healthy rats and mice exposed to cellphone radiation develop brain cancer — and they may not, if cellphones are only tumour promoters.

This is certainly not the first time a ubiquitous product has become a potential public health threat, and the big question is, how will it all play out? The cellphone industry could follow in the steps of Big Tobacco and continue to cast doubt on legitimate studies. Or it could adopt the science-minded approach of the automobile industry, which has responded to obvious public health dangers by engineering new technologies — the airbag, for instance — that minimize risk and attract the public's support.

In this era of Hollywood celebrities weighing in on international affairs, perhaps a media luminary like Larry King will call for long-term epidemiological research on the effects of habitual cellphone use. Or maybe good soldier Daniel Shattuck will discover the truth and broadcast it broadly; maybe he'll find a less hesitant doctor.

(2)

Parsons, Susan

From: Colin O'Neill [colin@colinoneill.net]
Sent: Wednesday, February 10, 2010 10:22 AM
To: Parsons, Susan
Subject: Request to address City Council on 3/10

Hello,
My name is Colin O'Neill and my address is 3774 NE Milton Street, Portland OR 97212, phone: 503 288 8192 I would like to address City Council at the Wednesday March 10 meeting. I would like to speak about the need for planning and policy to better manage the spread of wireless sites/cell towers in residential neighborhoods. I would be happy to send you more information if required.

Sincerely,
Colin O'Neill

colin@colinoneill.net
(503) 288 8192

309

Request of Colin O'Neill to address Council regarding the need for planning and policy to better manage wireless sites/cell towers in residential neighborhoods (Communication)

MAR 10 2010
PLACED ON FILE

Filed MAR 05 2010

LaVonne Griffin-Valade
Auditor of the City of Portland

By _____

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