

INSIDE...

EMF NEWS pp.1-7

Power Line Talk:

NEMA Seeks To Block Revision of EPA's EMF-Cancer Report • NIEHS and DOE Pursue Löscher Breast Cancer Studies • DOE Biological Research Program Survives • EPA-DOE-APHA Workshop • California EMF Program on School Siting Policy • Annual DOE-EPRI Review

California Utility Wins Property Value Case; Brain Tumor and Lymphoma Suits Filed

Is Power Line Litigation Over in California?

Dog Lymphoma Tied to Residential Fields

Some Recent Journal Articles

NCI Disputes Female Breast Cancer Link

NAS Panel To Assess RAPID Program

Two New EMF Booklets

RAPID Engineering and Biomedical Grants

HIGHLIGHTS pp.8-13

Swedish VDT Standard Goes International

CIRRPC Charter Not Renewed

Ferromagnetic Contamination of Research?

Cellular Phone Notes:

SAG Defers Repetition of Lai-Singh Study • California Tower Citing Violations • Carlo Briefs Federal Agencies • EMI Ruled Out in Helicopter Crash • McRee Joins SAG

Cell Phone Manager Files Brain Tumor Suit

CTIA Meeting Sparks Conspiracy Charge

FROM THE FIELD pp.14-15

Paul Brodeur on Nebraska

Childhood and Worker Cancer Clusters

UPDATES pp.16-18

Police Radar Suit for Medical Monitoring

Dismissed • Brooks AFB Slated To Close •

Assessing Sewing Machine Exposures •

Diathermy Study Challenged • Medical

Device EMI Conference • Ultrawide Band

Measurements Meeting • People in the

News • EMF and RF/MW Resources

CLASSIFIEDS pp.16-20

Suit Blames Texas Utility for 11 Cases of Childhood Cancer

EPRI Charged with Misleading the Public

In the largest electromagnetic field (EMF) lawsuit ever filed, 11 Texas families allege that magnetic fields from power lines and building wiring caused their children's cancers. Eight of the children were diagnosed with acute lymphocytic leukemia (ALL). The families claim that Houston Lighting & Power Co. (HL&P) was aware that magnetic fields can cause childhood cancer, but failed to take preventive action.

The suit, which was filed in December in the District Court of Harris County, TX, also charges that the Electric Power Research Institute (EPRI) conspired with the utility to discredit research linking EMFs to cancer, manipulate public opinion on EMF health risks and prevent government regulation of EMFs. The case is not expected to go to trial for at least two years.

The families are being represented by Joseph Jamail, one of the most successful—and richest—trial lawyers in America (see below). Janet Evans, an attorney with Jamail's firm, Jamail & Kolius in Houston, explained that Jamail will handle the case with John Tyler of Tyler & Das, also in Houston. Neither Jamail nor Tyler responded to repeated requests for interviews. One plaintiff contacted by phone said he would be happy to talk about the case but that his lawyers had advised his family not to comment at this time.

HL&P and its corporate parent, Houston Industries Inc., are represented by the Houston firm of Baker & Botts. Irv Terrell, an attorney with the firm, said in an interview that he had filed a response denying the complaint's

(continued on p.13)

Attorney Joe Jamail: A String of Record-Breaking Victories

The *American Lawyer* magazine described Joe Jamail as a "giant-killer." *Forbes* cited him as "the nation's highest-paid plaintiffs' lawyer," in a cover story on "Corporate America's Most Powerful People." The *National Law Journal* named him as one of the most influential attorneys in the U.S.

Jamail's suit against HL&P and EPRI marks the first time an attorney of his stature and resources has taken on a case linking EMFs to cancer.

Jamail won what the *Guinness Book of World Records* says is the largest civil damages award in history: an \$11.12 billion verdict against Texaco in 1985 (later settled out of court for \$3 billion). Estimates of his fee in the case ranged from \$300 million to well over \$400 million.

This is the Houston lawyer's second listing in *Guinness*. His first world record was set in a 1978 case against Remington Arms, which resulted in what was then the largest-ever individual cash settlement, \$7 million, and the recall of 200,000 rifles with faulty safety catches. "A lot of my cases

(continued on p.13)

« Power Line Talk »

The completion of EPA's revised **EMF-cancer report** is still months away, but the Washington-based National Electrical Manufacturers Association (NEMA) is already arguing that it should never be released. "We should not have individual agencies popping up and giving their own risk assessments," said NEMA's **Douglas Bannerman**, an environmental consultant who believes that only the DOE and the NIEHS, the two agencies coordinating the RAPID program, should set policy on EMF health risks. "The government should be speaking with one voice and we want DOE and NIEHS to have that one voice," he said. Bannerman made his concerns public on March 15 at the National EMF Advisory Committee (NEMFAC) meeting in Washington, but the EPA appears unmoved. "We're not going to change our plans. We see no reason to do so," said EPA's **Dr. Robert McGaughy**, who is in charge of the report. Five years ago, a draft of the report caused a stir due to its conclusion that EMFs are a probable or possible human carcinogen (see *MWN*, M/J90 and N/D90). The rewrite will probably also make waves because the EPA does not seem to be backing away from the view that there is an EMF-cancer link (see *MWN*, S/O94). However, the strength of EPA's commitment to this finding remains to be seen. The report is now in the midst of its second round of peer review—this time by a group of epidemiologists. An interagency review is the next step. The report is scheduled for public release in September, according to McGaughy. And EPA's EMF assessment is not the only one nearing completion. An NAS-NRC committee is drafting its own views of the cancer risk (see pp.6-7).

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The NIEHS and the DOE are moving to sponsor studies to validate and extend **Dr. Wolfgang Löscher's** work on **breast cancer** (see *MWN*, J/A93 and J/F95). The two agencies have been following Löscher's work, and last year NIEHS' **Dr. Gary Boorman** and DOE's **Paul Gailey**, the manager of the EMF program at the Oak Ridge National Lab, TN, visited his lab at the School of Veterinary Medicine in Hannover, Germany. Boorman, who is already in the midst of a number of large animal studies on reproductive and cancer risks (see *MWN*, S/O90), is drafting a protocol to repeat Löscher's animal studies in the U.S. In a presentation to NEMFAC on March 14, Boorman said that he will keep costs down by seeking a contractor who already has an animal facility in place, in order to avoid the expense of building a new one from scratch. Nevertheless, he warned that the study will still cost "several million dollars." As we reported in our last issue, ever since Löscher's results began to appear in print, he has found it almost impossible to raise research funds in Germany. The DOE has stepped in with an offer to help. At the agency's request, Löscher has submitted a proposal, which is now under review. "We feel that Löscher's findings have a direct bearing on the goals of the U.S. research program and we want to make sure that his studies are continued and repeated. It's important to keep Löscher's lab open while others are trying to repeat his work," Gailey said in an interview. Boorman has tentatively

arranged a collaboration with **Dr. Bo Holmberg** of Sweden's National Institute of Occupational Health, who is also interested in pursuing Löscher's findings. Boorman told the committee that if he can secure the money to repeat Löscher's experiment with continuous 50 Hz and 60 Hz magnetic fields, Holmberg will run the same experiment with intermittent fields. Last year, Holmberg's group reported that mice treated with a chemical carcinogen and an intermittent 50 Hz magnetic field had more skin tumors than mice only exposed to the chemical (see *MWN*, M/A94). In contrast, Holmberg found no synergistic action with a continuous 50 Hz field. NEMFAC tentatively endorsed Boorman's project and gave him the green light to draft a request for proposals.

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It appears that the **DOE biological mechanisms research program** will continue—at least for now. Last year, its fate was thrown into doubt when a Senate committee ordered that it be folded into the **NIEHS RAPID** health effects program, and specifically asked the two agencies to formulate an agreement on how the consolidation would be effected (see *MWN*, M/A94 and S/O94). Because both the House and the conference committees were silent on the issue, no one knew how the Senate language would be interpreted. The DOE and the NIEHS have concluded that the two programs should both move forward. Their rationale is that the two efforts are "complementary and independent" and that the two agencies will make sure that "there is no unnecessary duplication." Under their agreement (which has been signed by the NIEHS but not yet by the DOE), the DOE program will only be absorbed by the RAPID program if specifically required by law. The Senate committee report was interpreted as "advice," said DOE's **Robert Brewer**, albeit "advice that we take very seriously." NIEHS' **Dan Vandermeer** reiterated his position that, "We have no interest in taking over the management of the DOE program." When the Clinton Administration's proposed fiscal year 1996 (FY96) budget was recently announced, it became clear that not only will the DOE program survive, but it will snag more government funds than the RAPID program. The Clinton budget asks for \$6 million for DOE's studies on mechanisms and \$4 million for the RAPID effort. (Of course, these figures could change—as they did last year—when the appropriations bills move through Congress.) The government's RAPID budget for FY95 is \$8 million, all of which must be matched by industry—and no money can be spent until industry comes up with at least half of its share. By early March, industry had given the DOE \$3.5 million, with more than \$800,000 promised for the near future—so some new research funds should be available soon. This still leaves approximately \$3.7 million to be raised by the close of FY95 at the end of September. In FY94, industry had to contribute only \$4 million, but ended up \$50,000 short of that goal. The electric utility industry continues to support the \$65 million RAPID program, according to Shirley Linde, the chair of NEMFAC, but she said on March 14 at the committee meeting that she had

heard that some East Coast utilities are quietly lobbying against the program.

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The EPA, DOE and American Public Health Association's **EMF Workshop for Decision Makers** will be held May 15-16 in Annapolis, MD. Attendance will be limited to 40-50 participants and will be by invitation only. State and local government officials, as well as representatives of utilities and citizens groups, will discuss lessons learned, research and policy needs and ways of facilitating the dissemination of information. Contact EPA's Dennis O'Connor at (202) 233-9486.

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The **California EMF Program** has issued its first request for proposals (RFP), for an analysis of policy issues related to possible EMF health effects in public schools and day-care centers. The winning bidder will be asked to devise guidelines for local school districts, city and county planning departments and various government regulatory agencies. The guidelines must cover all contingencies—for instance: (1) that future research will prove conclusively that EMFs are health hazards; (2) that it will clear EMFs of causing any health risks; or (3) that some amount of uncertainty will remain. In a March

DOE-EPRI Review in Palm Springs

The 1995 annual review of EMF bioeffects research, sponsored by the DOE and EPRI, will be held November 11-18 at the Hilton Hotel in Palm Springs, CA. For reservations, call (800) 445-8667 or (619) 320-6868.

A call for abstracts will be issued in June. For more information, contact: W/L Associates, 7519 Ridge Rd., Frederick, MD 21702, (301) 663-1915, Fax: (301) 371-8955.

23 letter, Dr. **Vincent Delpizzo**, the program's research director, cautioned that the principal investigators must "neither appear to have prejudged, or in fact have prejudged, the best course of action." Persons with a "definite point of view" can still participate, as long as "the overall composition of the team is balanced." A peer-review panel has been named to decide on the proposals and to oversee the study. The members are: Dr. Dick Ball, DOE, Washington; Elinor Blake, Contra Costa County Health Services, Martinez, CA; Shan Cretin, Shan Cretin & Associates, Santa Monica, CA; Paul Locke, director, Center for Public Health and Law, Washington; and Dennis O'Connor, EPA Office of Radiation and Indoor Air, Washington. Proposals are due by May 30. An RFP for school exposure assessment will be available at the end of April.

California Cancerphobia—Property Value Case Dismissed as New Brain Tumor and Lymphoma Suits Are Filed

A state appeals court ruled that the California Public Utilities Commission (PUC) has exclusive jurisdiction over all power line EMF safety questions, and for that reason has ordered a lower court to dismiss a property devaluation suit against San Diego Gas & Electric Co. (SDG&E).

"The decision, if left undisturbed, could end EMF litigation in California," said Greg Barnes, assistant general counsel for SDG&E, who believes that PUC jurisdiction will make it impossible for plaintiffs' lawyers to earn large contingency fees in EMF suits. While some plaintiffs' lawyers dissent from this view, all agree that the decision is already affecting other cases (see below and box, p.4).

The February 28 ruling stemmed from a lawsuit brought by Martin and Joyce Covalt of San Clemente, CA, in December 1993. SDG&E petitioned the Court of Appeal in Santa Ana to order the case dismissed, contending that EMF health and safety issues can only be brought before the PUC (see *MWN*, N/D94).

According to the appellate ruling, "The superior court would have to come to conclusions contrary to those reached by the PUC in considering the same issue" in order to award damages. The PUC has ruled that there is insufficient evidence to conclude that EMFs threaten public health. The appellate court concluded that EMF regulation "is best left to the PUC which can assure uniformity...throughout the state, rather than to courts acting on an ad hoc basis."

"This decision has dealt a serious blow to the fundamental constitutional rights of all property owners in the state of

California," Michael Withey, the Covalts' attorney, stated in a press release. The ruling will be appealed, according to the statement, released by Withey's firm, Schroeter, Goldmark & Bender in Seattle. Withey did not return repeated telephone calls for comment.

The state Supreme Court will announce within the next couple of months whether it will hear the appeal. If it accepts the case, a final decision may not come for another year or two.

Statewide attention focused on the jurisdictional issue, but the Court of Appeal also ruled on the specifics of the Covalts' lawsuit. It found that the Covalts' fear of cancer was not compensable because it was not backed up by reliable medical and scientific opinion. The ruling cited *Potter v. Firestone Tire & Rubber*, a recent California decision which concluded that fear of cancer following exposure to a toxic substance is unreasonable unless plaintiffs can prove that they will "more likely than not" develop cancer as a result.

As summarized in the decision, the Covalts had alleged that their fear of "contracting cancer in the future is their [personal] injury," and that public fear of EMFs, "regardless of the reasonableness of that fear," decreased the value of their property. But the ruling stated that the Covalts' lawyers conceded in oral argument that their clients no longer claimed damages resulting from their fear of cancer. They still sought damages for medical monitoring for that disease.

The Covalts' suit had not yet gone to trial in Superior Court, and the Court of Appeal noted that it is rare for a higher court to intervene before final judgment at a lower level. In explain-

ing its decision to grant “extraordinary relief,” the appeals panel cited the jurisdictional issue and the “widespread interest” in the outcome, as well as the fact that SDG&E had successfully defended itself in two similar lawsuits. “Many more litigants are waiting in the wings to test out the same theories” of an EMF–cancer link, according to the decision. By granting the dismissal, the court held that “needless and expensive trials” have been prevented.

The PUC’s general counsel had written to the Court of Appeal on July 19, 1994, in support of SDG&E’s position, asking the panel to confirm the PUC’s “exclusive jurisdiction” over EMF safety issues.

Although the PUC lacks authority to award damages (except in utility bill disputes), the court asserted that its decision on jurisdiction does not leave the Covalts without recourse: They may petition the PUC to “have unsafe utility equipment moved or altered....If the Covalts are unsatisfied with the PUC’s handling of their complaint, they must seek review before the [state] Supreme Court.”

The Covalts’ case is similar to one brought by their neighbors, Mark and Cheryl McCartin and two other couples. A California Superior Court judge dismissed the McCartin complaint in 1994 (see *MWN*, M/J94). The previous year, a jury rejected a claim by Michelle and Ted Zuidema that EMFs from SDG&E power lines caused their daughter to develop a

rare kidney cancer (see *MWN*, M/J93).

PG&E Charged in Phone Worker’s Brain Cancer

The Pacific Gas and Electric Co. (PG&E) is the target of a lawsuit filed on February 3 by the family of telephone line worker Mark Callan, who died in February 1994 from a brain tumor. The suit claims that EMFs from PG&E power lines and transformers caused Callan’s cancer, and that PG&E “knew or should have known” about the danger but failed to warn workers or reduce or monitor their EMF exposures.

Lawyers for both sides said they expect the first issue in the case to be the relevance of the recent Covalt decision to personal injury claims (see box below).

During Callan’s 14 years in the telephone industry, he worked for Pacific Bell, AT&T and two other firms, both indoors and outdoors. “Line workers often do their jobs within ten feet of high-voltage power lines and transformers, day in and day out,” said attorney Ron Herron, a member of the San Francisco firm of Herron & Herron, which is one of two representing Callan’s widow, Cynthia Ford, and their three children. He cited a Johns Hopkins University epidemiological study of telephone line workers, which found significantly elevated cancer rates among cable splicers, a subgroup of line workers (see *MWN*, N/D89 and M/A93).

Roger Rizzo, an attorney on the case for PG&E, said, “The

Is Power Line EMF Litigation Over in California?

Attorneys for both sides in *Covalt v. SDG&E* have said that a dismissal would put an end to power line EMF litigation in California. Now that the case has been dismissed, will this prediction prove correct?

Lawyers for California utilities answer yes, if the ruling that the PUC has exclusive jurisdiction is not overturned by the state Supreme Court. “We expect to argue that the Covalt case applies to the Muir case, and will ask for a dismissal,” said John Tinker, defense attorney in *Muir v. SCE*. Roger Rizzo plans to make the same argument for the defense in *Ford v. PG&E*. SDG&E lawyer Greg Barnes said that plaintiffs’ lawyers “have been promoting junk science in the courts of California. This Covalt case killed that business.”

Plaintiffs’ attorneys question whether the implications are quite so sweeping. They contend that even if the Covalt ruling is sustained, its significance may be limited to the property devaluation issues that were at the heart of the Covalt family’s legal action.

“The Covalt ruling may not affect personal injury or wrongful death claims,” said Ron Herron, the plaintiffs’ lawyer in the Ford brain tumor case. “As an example, electrocution claims have traditionally been heard in superior or municipal court, not by the PUC.”

The Covalt decision involved property devaluation and a fear of developing cancer, not a current illness. But SCE’s Tinker feels the ruling “is broad enough to apply to personal injury cases.”

According to Barnes, the decision’s “rationale is that you

can’t maintain any damage action where the outcome of the trial might conflict with the findings of the PUC on power line safety issues. And the PUC does not link EMF with cancer.” Rizzo observed that “this rationale applies with equal if not greater force to a personal injury claim.”

Herron plans to pursue his case either way. “Even if it’s determined that the PUC has jurisdiction—well, for every wrong there has to be a remedy. If the PUC wants to create a forum where it adjudicates the claims of people hurt or killed by EMFs and decides on damage awards, then so be it.” If Herron is right, jurisdiction over personal injury cases would put the PUC in a difficult position, because it currently has no authority to award damages (except in disputes over utility bills).

Rizzo said that such questions would likely be explored as soon as the PUC’s jurisdiction is confirmed. But he said there is no doubt that “if the courts apply the same reasoning as in the Covalt decision, personal injury cases will have to go to the PUC.”

The question of personal injury claims received little explicit attention in the Covalt ruling, since there was no attempt to prove physical injury or to show clear scientific evidence that EMFs cause cancer. In cases where plaintiffs seek to prove either point, the courts will have to address the question more directly. The answer will determine whether there is still any financial incentive for lawyers to bring this type of lawsuit.

Whatever the final result, every EMF claim in the state is now faced with the hurdle of *Covalt*.

company sympathizes with the family, and brain cancer is certainly a terrible disease. But we don't believe this case has any merit." He noted that two previous brain cancer-EMF lawsuits against PG&E had been dismissed. Both cases were defended by Rizzo's firm, Sedgwick, Detert, Moran and Arnold, also of San Francisco.

"This is a novel case," said Rizzo, "because other than workers' comp, I'm not aware of any civil cases that are occupational." In April 1994, Washington state denied an EMF-related workers' compensation claim by the widow of utility worker Robert Pilisuk (see *MWN*, M/J94). The workers' compensation system in each state almost always has sole authority over health and safety claims against employers. But since Mark Callan was never employed by PG&E, his widow was free to sue the company in Superior Court.

"The scientific and medical community really doesn't know what causes brain cancer," contended Rizzo. "There's no strong argument for singling out EMFs."

Herron disagreed, noting, "This case comes at a time when the electric power industry has just studied 140,000 death certificates and found a statistically significant link between EMFs and brain cancer," referring to the recent work of Drs. David Savitz and Dana Loomis (see *MWN*, J/F95). "Other studies have been showing a link to cancer for 15 years. Our suit is just the tip of an iceberg. Thousands of telecommunications workers have high exposures to EMFs from power lines and equipment—not just on poles but also in commercial buildings."

"The problem with epidemiological studies," Rizzo responded, "is that they don't prove cause and effect. There's a high association between a rooster crowing and the sun rising, but that doesn't prove that the rooster makes the sun come up." He argued that the Savitz-Loomis results are different from those of other investigators, including Dr. Gilles Thériault of McGill University and Jack Sahl of Southern California Edison (see *MWN*, M/A93, J/A93 and M/A94). "The Sahl study showed absolutely no link at all. So there's no consistency, and there's also no laboratory studies that would make the link biologically plausible."

The case is expected to go to trial sometime after the fall of 1996.

SCE Sued Over Non-Hodgkin's Lymphoma

Southern California Edison Co. (SCE) is being sued by a Newport Beach resident who has developed non-Hodgkin's lymphoma. The plaintiff, Douglas Muir, claims that his disease resulted from exposure to power line EMFs.

Muir's complaint, filed in Superior Court on December 13, 1994, charges SCE with product liability and negligence. The charges relate to three 4 kV SCE distribution lines, which, the complaint states, were directly outside Muir's bedroom window. The magnetic fields inside Muir's apartment ranged as high as 6.6 mG, according to SCE's own measurements in March 1994, cited in the complaint. Muir was diagnosed in February 1994, about 13 years after he first leased the apartment.

SCE lawyer John Tinker said that he "absolutely" will ask for a dismissal on the basis of the recent *Covalt* decision. Muir's attorney, Annee Della Donna of the Santa Ana firm of Wylie

Aitken, disagreed on the relevance of *Covalt* to personal injury.

Muir also contends in his complaint that SCE violated the requirements of both the National Electric Code and the PUC Code General Order 95, which mandate a 12-foot distance between a roof and power lines. SCE has since raised the lines to the required level, the complaint states. Tinker said that the distance requirement applied to hazards such as electrocution, not to EMFs.

Lymphoma in Dogs Linked to Residential EMF Exposures

Dogs that lived in high-current-configuration houses were 80% more likely to get lymphoma than dogs that lived in low-current houses, according to a team of Colorado researchers. The cancer risk for dogs that lived in very-high-current houses was almost seven times that of dogs that lived in houses near buried power lines. The association between measured fields and lymphoma was not significant, although dogs that lived in houses where outdoor magnetic fields were, on average, over 2 mG had an up to 90% greater risk of lymphoma than dogs that lived where the fields were lower.

Since the study is the only one of its kind, the results must be interpreted cautiously, lead investigator Dr. John Reif of the Colorado State University College of Veterinary Medicine in Fort Collins told *Microwave News*. But he said that there is "some consistency" with what has been reported in studies of childhood leukemia. And, he added, the results are "supportive of the notion that exposure to EMFs as measured by wire codes is associated with lymphoma."

Studies by Dr. David Savitz of the University of North Carolina School of Public Health, Chapel Hill, and by Dr. John Peters of the University of Southern California in Los Angeles found significant associations between wire codes and leukemia (see *MWN*, N/D86 and M/A91). Reif, like Savitz and Peters, used versions of the wire codes developed by Dr. Nancy Wertheimer and Ed Leeper for their 1979 landmark study of residential EMF exposure and childhood cancer.

Reif commented that dogs make good subjects because

Selected New Papers

Joseph Bowman et al., "Hypothesis: The Risk of Childhood Leukemia Is Related to Combinations of Power Frequency and Static Magnetic Fields," *Bioelectromagnetics*, 16, pp.48-59, 1995 (see *MWN*, M/A92).

Donald Haes Jr. and Michelle Fitzgerald, "Video Display Terminal Very Low Frequency Measurements: The Need for Protocols in Assessing VDT User 'Dose,'" *Health Physics*, 68, pp.572-578, April 1995.

James Randa et al., "Catalogue of Electromagnetic Environment Measurements, 30-300 Hz," *IEEE Transactions on Electromagnetic Compatibility*, 37, pp.26-33, February 1995.

S. Tofani et al., "Evidence for Genotoxic Effects of Resonant ELF Magnetic Fields," *Bioelectrochemistry and Bioenergetics*, 36, pp.9-13, 1995.

“you know where they are all the time.” As he and his co-workers explained in the February 15, 1995, *American Journal of Epidemiology* (141, pp.352-359), dogs’ shorter life spans and the fact that they, in general, spend more time than human subjects in and around their homes “may reduce the misclassification of environmental exposures that often plagues studies in humans” (see *MWN*, J/F95). In addition, lymphoma in dogs is similar to human leukemia and has been used as a model to study the effects of other pollutants, such as herbicides.

The researchers used dogs with other types of cancer as the controls. They pointed out that this could have caused them to underestimate the association between EMFs and lymphoma if EMFs do promote cancer in general, as some investigators claim. Reif is planning another analysis with a different control group.

NCI Disputes Loomis Findings on Female Breast Cancer Risk

Researchers at the National Cancer Institute (NCI) in Bethesda, MD, have found no overall association between occupational EMF exposures in women and breast cancer deaths. These results contrast with those of Dr. Dana Loomis’s earlier study using the same data. Loomis found a 40% higher breast cancer mortality among female electrical workers (see *MWN*, N/D93).

“I don’t think that you can say from our data that there is or there is not a risk,” Dr. Kenneth Cantor, who led the NCI study, told *Microwave News*. He said that the point of his letter in the *Journal of the National Cancer Institute (JNCI)* (87, pp.227-228, February 1, 1995) “was to show how imprecise this method and approach is.”

In his letter and in telephone interviews, Cantor emphasized the limitations of studies such as his and Loomis’s—both relied on death certificates for occupational data. He explained that these types of studies can suggest possible breast cancer risk factors, but cannot test hypotheses: “They provide a crude first approximation and should only be used to make the most general statements.” He noted that the media had overinterpreted the Loomis report.

Cantor and colleagues used a different study design than did Loomis: They assigned EMF exposure levels and probabilities of exposure based on job titles. The exposure assessment was carried out by NCI industrial hygienist Dr. Mustafa Dosemeci. In contrast, Loomis, who is at the University of North Carolina School of Public Health, Chapel Hill, categorized jobs more simply, as exposed or unexposed.

In an interview, Loomis conceded that his own report was “preliminary.” He said that he was not surprised that the NCI researchers had found different results given their different approach. “It’s a challenging proposition to assign exposures to these jobs. For the majority of jobs, we know nothing about exposure,” he said.

The NCI researchers concluded that, “The primary contribution of the work of Loomis et al. (and this analysis) has been to rule out the possibility of [a] very high breast cancer risk associated with exposure to extremely low frequency fields. The possibility of a modest elevation of risk that is caus-

New EMF Booklets

Two new booklets, from the U.S. and from the U.K., provide overviews of EMF health risks.

Questions and Answers About EMF: Electric and Magnetic Fields Associated with the Use of Electric Power was prepared under the direction of the NIEHS and the DOE for the EMF RAPID Program. The 67-page booklet reviews potential health effects, outlines recent research and discusses what the government is doing to address public concerns. Tables listing average EMF levels from appliances are also included.

Single copies are available for free from the EMF Info-line at (800) 363-2383. To purchase bulk quantities, contact: Alicia Hilary, U.S. Government Printing Office, Washington, DC 20402, (202) 512-1708. A Spanish edition will be released soon.

Living with Electricity: EMFields Information Booklet No.1, by Alasdair Philips with Neil Mayhew and Tim Williams, a team of U.K. activists, provides basic information on topics ranging from how EMFs are generated to the official British government position to military uses.

The 57-page booklet is available for £9 (approximately \$14.50) in the U.K. and £12 (approximately \$19.20) elsewhere from: Alasdair Philips, 2 Tower Rd., Sutton, Ely, Cambridgeshire CB6 2QA, U.K., (44+638) 742922, Fax: (44+638) 743155. Payment must be in pounds.

al cannot be addressed by these data.”

They did find a significant, but “modest,” increase—approximately 30%—in breast cancer among black women who had a “medium” or “high” probability of EMF exposure.

Cantor and his associates have been attempting to identify potential occupational risk factors for breast cancer. In a separate analysis, published in the March 1995 issue of the *Journal of Occupational and Environmental Medicine* (37, pp.336-348), they reported an association between breast cancer risk and exposure to radiofrequency (RF) radiation. While significant for both white and black women, the risk for black women was double that of white women (29% and 14% excess, respectively).

In their letter to *JNCI*, Cantor and coworkers argued that RF exposure is not an important risk factor for breast cancer because of an absence of a dose-response relationship and other factors.

NAS Appoints Panel To Assess RAPID Program

The National Academy of Sciences (NAS) has appointed a seven-member committee to assess work sponsored under the EMF Research and Public Information Dissemination program (RAPID). The committee, mandated by the Energy Policy Act of 1992, will review the implementation of the \$65 million national program, administered jointly by the National Institute of Environmental Health Sciences (NIEHS) and the Department of Energy (DOE) (see p.2 and *MWN*, N/D92).

RAPID Engineering and Biomedical Research Grants

On March 8, DOE's EMF Research and Public Information Dissemination (RAPID) Program announced five grants for engineering studies. These were chosen from 41 proposals from 17 institutions. This summer, the DOE will issue a second request for proposals. For more information, contact: DOE RAPID Program Manager Lynne Gillette, (202) 586-1495, Fax: (202) 586-0784. On March 14, NIEHS' Dr. Michael Galvin announced two new biomedical grants. (For a list of prior awards, see *MWN*, S/O94.)

Engineering*

Investigator(s)/Institution	Award	Project
Dr. Dan Bracken T. Dan Bracken Inc. Portland, OR	\$111,399	Recommend guidelines for personal exposure measurements. These will include sampling strategies, methods of analysis and the selection of specific field parameters, instrumentation and measurement protocols. Carry out pilot studies to test recommendations.
Dr. Dan Bracken T. Dan Bracken Inc. Portland, OR	\$99,889	Establish standards for an EMF measurement database, part of the EMF Clearinghouse being developed by the NIEHS with the DOE. Review existing data, develop a standardized format to allow the inclusion of both past and future EMF measurement data in an easily accessible database.
Fred Dietrich and Bill Gish Electric Research and Management Inc. Pittsburgh, PA	\$120,552	Recommend guidelines for measuring fields associated with specific types of sources. Includes developing candidate field parameters and testing the practicality of measuring them. Measurements will be made for a wide range of sources.
Pamela Long Magnetic Measurements San Francisco, CA	\$122,804	Recommend and evaluate guidelines for field measurement in a variety of typical environments. Focus on the environment as a whole and the field levels people might experience within it, given their patterns of activity.
Dr. Luciano Zaffanella Enertech Consultants Lee, MA	\$227,591	Survey EMFs and determine the contributions of specific sources. Examine both typical environments and some with intense or unusual field sources.

Biomedical

Dr. Theodore Litovitz† Catholic University of America Washington, DC	\$693,606	Investigate and characterize the mechanisms by which cells detect and respond to weak 60 Hz sinusoidal magnetic fields.
Dr. Fatih Uckun‡ University of Minnesota Minneapolis, MN	\$462,938	Elucidate the molecular mechanisms by which low-energy EMFs initiate a cascade of cytoplasmic and nuclear signaling events in human lymphocyte precursor cells.

*Each grant was selected by a subset of the following reviewers: Dr. Joseph Bowman, NIOSH; Lynne Gillette, DOE; Dr. Imre Gyuk, DOE; Norbert Hankin, EPA; Dr. Gregory Lotz, NIOSH; Edwin Mantiply, EPA; Dr. Mark Methner, NIOSH; Dr. Martin Misakian, NIST; Jack Sahl, Southern California Edison; Dr. Thurman Wenzel, NIOSH.

†The members of the NIH peer-review panel were: Drs. Joseph Roti Roti (chair), Washington University School of Medicine, St. Louis; Joan Bull, University of Texas Medical School, Houston; Peter Corry, William Beaumont Hospital, Royal Oak, MI; Deborah Cory-Slechta, University of Rochester School of Medicine, NY; David Grdina, Argonne National Laboratory, Argonne, IL; Fred Hetzel, Presbyterian/St. Luke's Hospital, Denver; Richard Luben, University of California, Riverside; Kenneth McLeod, State University of New York School of Medicine, Stony Brook; Martin Misakian, NIST, Gaithersburg, MD; John Moulder, Medical College of Wisconsin, Milwaukee; Russell Reiter, University of Texas, San Antonio; Jeffrey Saffer, Battelle Pacific Northwest Labs, Richland, WA; Thaddeus Samulski, Duke University School of Medicine, Durham, NC; Peter Valberg, Gradient Corp., Cambridge, MA; Jerry Williams, Johns Hopkins Oncology Center, Baltimore.

‡The members of the NIH peer-review panel were: Drs. James Lin (chair), University of Illinois, Chicago; Erik Cheever, Swarthmore College, Swarthmore, PA; Graham Jamieson, American Red Cross, Rockville, MD; Donald McRae, Georgetown University, Rockville, MD; Antonio Sastre, AS Consulting and Research Inc., Suffern, NY; Maria Stuchly, University of Victoria, BC, Canada; Ronald Wakai, University of Wisconsin, Madison.

The committee is chaired by Dr. Charles Bean, an academy member and professor of science at Rensselaer Polytechnic Institute in Troy, NY. Two others on the committee are also members of the academy: Dr. Maurice Fox, professor of molecular biology at Massachusetts Institute of Technology in Cambridge, and Dr. Peter Marler of the Animal Communication Laboratory at the University of California, Davis. The four other members of the committee work on EMF issues: Fred Dietrich, an engineer with Electric Research & Management Inc. in Pittsburgh; Dr. Walter Rogers, manager of the biosciences section at the Southwest Research Institute in San Antonio; Dr. Jan Stolwijk, professor of epidemiology and public health

at the Yale University School of Medicine in New Haven, CT; and Dr. Jerry Williams, the director of the Radiobiology Lab at the Johns Hopkins Oncology Center in Baltimore.

Stolwijk and Williams are also on the NAS-National Research Council's (NRC) committee that is reviewing potential health risks from EMF exposures (see *MWN*, S/O91 and M/J93). The work of this committee has been delayed by a temporary lack of funds, according to Dr. Larry Toburen, the NAS-NRC staff director for both review committees.

The RAPID committee met for the first time on March 13 in Washington, but its purpose was primarily organizational, Toburen said.

Swedish VDT Emissions Standard Goes International

A committee of European experts is putting the final touches on a draft revision and expansion of MPR2—Sweden's measurement and emissions guidelines for video display terminal (VDT) EMFs (see *MWN*, S/O90). While MPR2 now functions as the *de facto* international VDT standard, the new version, known as MPR3, is designed to make it official.

MPR3 is significantly different from MPR2: It includes four separate emissions categories (see table below), a simplified protocol for laboratory measurements and directions for workplace surveys. The new standard requires far fewer measurements for magnetic fields—half as many as MPR2. In addition, MPR3—designated SS4361490 (1995)—is designed for all types of displays, not just standard cathode ray tube monitors.

The draft proposal, which will be released this spring, incorporates key elements from guidelines developed in the U.S., Europe and Japan. “We looked at the existing standards, and we tried to take the best things from each of them,” said Gert Anger of the Swedish Institute for Radiation Protection in Stockholm, who is on the expert panel. Other members include representatives from Swedish government agencies and large computer manufacturers, such as Apple, Hewlett-Packard, IBM and ICL.

“Market pressures are leading to the development of disparate guidelines around the world and there is a danger of this leading to confusion,” Dave Sawdon of IBM U.K. said in an interview from his lab in Winchester, England. “The purpose of the standard is to harmonize measurement methods and to predefine some performance criteria so that VDT emissions can be compared among products,” he explained. Sawdon is serving as the editor of the MPR3 document.

The panel—chaired by Hjalmar Bondestam of Combinova,

a Swedish manufacturer of EMF meters—is working under the aegis of the Swedish Electrical Commission, known as SEK. The European Committee for Electrotechnical Standardization, called CENELEC, has officially recognized the expert panel. If approved by CENELEC, MPR3 would become a European standard and could then be submitted to the International Electrotechnical Commission for possible adoption as a worldwide standard.

“VDT technology has developed to the point that MPR2 needed updating and clarifying to remove the loopholes that have become apparent since it was first introduced,” said Sawdon, who oversees IBM's Hursley EMC Laboratory, one of two accredited for MPR2 measurements. As an example, Sawdon explained that manufacturers of multimode monitors, which feature various levels of resolution, can claim their products meet the limits, even if they only do so at lower resolutions.

Under MPR3, a VDT would have a label identifying its compliance with a given category. If a product has higher levels than those specified in categories A, B or C, or meets even lower levels, a manufacturer could choose to have it labeled as category X.

Having different categories is “worth trying,” said Kjell Fransson, a representative from the Swedish white-collar union TCO, who serves on the panel. But he had doubts about category X, calling it “a joker.”

John Chubb of Apple's imaging products division in Santa Clara, CA, is less sanguine: “Having four different levels of compliance is probably not going to catch on,” he said. While Apple will probably continue to meet MPR2 and the strict guidelines developed by TCO, it is unlikely to loosen internal standards to meet the less stringent category C or the manufacturer-specified category X: “I can't see why we would go

Emissions Guidelines for Computer Displays

Proposed	ELF[§]		VLF[§]		Electrostatic	Footnotes
MPR3	(Band I: 5 Hz-2 kHz)		(Band II: 2 kHz-400 kHz)		Field[∞]	
Categories	E-Field	H-Field	E-Field	H-Field		
A	≤10 V/m [•]	≤2 mG [◇]	≤1.0 V/m [◇]	≤0.25 mG [#]	≤±5 kV/m [@]	§ ELF: extremely low frequency; VLF: very low frequency; E-Field: electric field, measured in volts per meter (V/m); H-Field: magnetic field, measured in milligauss (mG). 1 mG = 100 nanotesla. ∞ Measured at 10 cm from the VDT. @ This is equivalent to ±500 V. • Measured at 30 cm in front of the VDT. * Measured at 50 cm in front of the VDT. ◇ Measured at 50 cm around the VDT and at 30 cm in front of the VDT (single point). # Measured at 50 cm around the VDT. + Japan Electronics Industry Development Association. ‡ Electric and magnetic emissions limits were proposed in February 1991 but were never adopted (see <i>MWN</i> , M/A94). † International Electrotechnical Commission (IEC) Class I equipment. ¶ IEC Class II equipment.
B	≤25 V/m [*]	≤2 mG [#]	≤2.5 V/m [#]	≤0.25 mG [#]	≤±5 kV/m [@]	
C	≤50 V/m [*]	≤2 mG [#]	≤10 V/m [#]	≤0.25 mG [#]	≤±5 kV/m [@]	
X	Manufacturer Specified Emissions Levels					
Existing Guidelines						
TCO	≤10 V/m [•]	≤2 mG [◇]	≤1.0 V/m [◇]	≤0.25 mG [#]	≤±500 V	
MPR2	≤25 V/m [*]	≤2.5 mG [#]	≤2.5 V/m [#]	≤0.25 mG [#]	≤±500 V	
JEIDA⁺ (& P-1140[‡])	≤50 V/m ^{†*}	≤2.5 mG [#]	≤10 V/m ^{†¶#}	≤0.25 mG [#]	N/A	
	≤250 V/m ^{¶*}					

backwards since MPR2 is so widely known,” Chubb said.

The most significant variation among the categories is that the electric field limits are significantly higher in category C than in categories A and B. The ELF magnetic field limit in categories B and C is somewhat stricter than the one specified by MPR2: 2 mG at 50 cm around the VDT rather than 2.5 mG. This is an acknowledgment that new display technology can inherently achieve this level, Sawdon said. But category A, which is based on TCO’s guidelines, has the strictest limits—2 mG at 30 cm from the front of the VDT and at 50 cm from the back and sides.

Chubb noted that the MPR3 protocol for *in situ* measurements will make it easier to compare survey results. Paul Snayd, manager of IBM’s VDT project office in Somers, NY, pointed out, “A protocol for field measurements would better help customers who are concerned about the issue.”

“The fact that they are reducing the number of test points for laboratory measurements is great,” said Chubb, who helped develop the MPR2 guidelines and the IEEE P-1140 measurement protocol. He is pleased that the measurement method will now be closer to that specified by P-1140 (see *MWN*, M/A94). But P-1140 Chairman Dheena Moongilan of AT&T Bell Labs in Holmdel, NJ, wondered, “Why not adopt P-1140?”

Chubb does not think that this is an option because P-1140 does not include emissions limits: “Who’s going to say, ‘I measured by P-1140, but I meet MPR2?’”

Moongilan questioned having EMF limits at all, maintaining that “achievable limits don’t make sense, since they imply greater safety.”

CIRRPC Charter Not Renewed

The White House Office of Science and Technology Policy (OSTP) is not renewing the charter for the Committee on Interagency Radiation Research and Policy Coordination (CIRRPC). The 11-year-old committee will cease operating this September 30, the end of the current fiscal year.

A key factor in the decision was the formation last year of the National Science and Technology Council, according to a February 10, 1995, letter to Dr. Alvin Young, the chairman of CIRRPC, from Dr. John Gibbons, President Clinton’s science adviser and the head of the OSTP. A new subcommittee of the council’s Committee on Health, Safety and Food will take over CIRRPC’s responsibilities.

In 1992, a CIRRPC-commissioned report concluded there was “no convincing evidence in the published literature” to support the possibility that EMFs present a health hazard (see *MWN*, N/D92). The report was designed to balance the 1990 Environmental Protection Agency (EPA) draft report which concluded that EMFs are a possible human carcinogen (see *MWN*, M/J90 and S/O94).

Dr. Robert McGaughy, a senior scientist in EPA’s Office of Health and Environmental Assessment, who was in charge of the 1990 draft report and who is currently working on its revision (see p.2), serves as chairman of CIRRPC’s subpanel on EMF health effects.

Others are concerned that MPR2 and MPR3 may offer consumers a false sense of security, because the guidelines fail to characterize what may be key aspects of VDT fields. Clas Tegenfeldt, an electrical engineer at Linköping University in Linköping, Sweden, points to variations over time, modulations and transients. “There is no guarantee whatsoever that an MPR2-approved VDT does not affect the user’s health,” he notes in a paper to be presented at the *2nd Copenhagen Conference on Electromagnetic Hypersensitivity*, May 22-23 (see *MWN*, N/D94).

IBM’s Sawdon emphasized that MPR3, like MPR2, is based on what is technically achievable, not on health research.

Ferromagnetic Contamination: Does It Vitate in Vitro Studies?

The validity of *all* laboratory studies on the effects of non-ionizing radiation has been thrown into question because of possible contamination by ferromagnetic particles. In a letter that appeared in the March 9 issue of *Nature*, Dr. Michael Nesson of Oregon State University, Corvallis, and Drs. Atusko Kobayashi and Joseph Kirschvink, both of the California Institute of Technology in Pasadena, caution that such particles “may provide a simple mechanism to account for links between EMF exposure and *in vitro* biological effects.”

Kirschvink stressed in an interview that he believes high-frequency studies are also suspect: “Microwave—250 MHz to 10 GHz—*in vitro* studies are just as confounded.”

Nesson told *Microwave News* that he and his colleagues had decided to notify the general scientific community because funding of *in vitro* EMF studies was continuing, especially under the RAPID program, after the problem of contamination had been announced.

“We feel very strongly that this essentially invalidates all *in vitro* work,” Nesson explained. “It’s a totally uncontrolled factor.” And Kirschvink said: “You cannot use the *in vitro* work to say anything about the public health question.” Asked his opinion of the health risk, Kirschvink replied, “The epidemiological work makes me pause to think.”

“We are not spoilers of the idea that there may be biological effects of EMFs,” said Nesson, “but we are certainly spoilers of the current body of data, all lacking in controls.” In 1992, Kirschvink and colleagues reported having isolated microscopic particles of naturally occurring magnetite from human brain tissue (see *MWN*, M/J92). They suggested that, if in fact there are any EMF health risks, these particles could play a role. Nesson noted that, “Calculations suggest that 1-10 mG are sufficient for biogenic magnetite to have an effect.”

In their letter to *Nature*, the researchers point to “ferromagnetic particulates present not only in the dust in the air, but also adsorbed onto the surfaces of laboratory equipment, present within glass and plastics and even in reagent-grade laboratory chemicals and water.” Kirschvink told *Microwave News* that scientists “should avoid any disposable plastic labware like the plague and all glassware should be boiled with aqua regia, a mixture of nitric and hydrochloric acid.”

« Cellular Phone Notes »

The Cellular Telecommunications Industry Association's (CTIA) Scientific Advisory Group on Wireless Technology (SAG) has decided to defer a repeat of the **Lai-Singh** experiment which showed that 2.45 GHz radiation can cause single-strand DNA breaks in the brains of rats (see *MWN*, N/D94) until a SAG-approved exposure system is available. The decision was based at least in part on a review by the **Harvard Center for Risk Analysis'** cellular telephone advisory committee. However, the SAG appears to be ambivalent about whether to wait until a head-only exposure system is developed or until an international validation study of the comet assay used by Drs. Henry Lai and N.P. Singh is completed. In a February 8 letter to the SAG's Dr. George Carlo, the center's Dr. Susan Putnam wrote that, "The majority of the peer reviewers stated that the repetition of the [Lai-Singh study] should be deferred until an appropriate *in vivo* exposure system is developed. There was some concern expressed, however, that this would delay the program and that there was no reason to wait before beginning the replication process of the [Lai-Singh] study....The majority of the reviewers again stated that it would be prudent to wait until the international validation [was] completed before repeating the initial study. There were also several comments in disagreement with this, however. There was some concern over whether the international validation would be contributory to the issue and also concern that waiting would provide unnecessary delays to the program with little added benefit." Putnam told *Microwave News* that only six of the 11 members of the committee—Drs. Larry Anderson, Carl Durney, Saxon Graham, Asher Sheppard, Peter Valberg and Gary Williams—had responded to her request for comment, but she would not say what each had recommended. The four epidemiologists on the panel had not expressed opinions; neither had the committee's final member, Dr. Don Justesen. Since the panel was first announced last year (see *MWN*, J/A94), Dr. Philip Cole has resigned; very recently EPA's Dr. Joe Elder joined the group. The Harvard center would not release its report without Carlo's permission, and Carlo kept it confidential for six weeks. On March 23, Carlo released it as an attachment to a letter to FDA's Dr. Elizabeth Jacobson, in which he stated that, although the SAG would delay *in vivo* studies, it would release a request for proposals "within the next couple of weeks" for *in vitro* studies in "multiple laboratories." Carlo announced that, "Our goal is to have the initial *in vitro* work completed within the second quarter of this year." Mike Volpe, SAG's spokesperson, said that three labs will do the *in vitro* work: that of Dr. Martin Meltz of the University of Texas Health Sciences Center in San Antonio and two others to be selected from proposals received in response to the upcoming request. Volpe confirmed that the SAG expects to have experimental data in hand by the end of June. Carlo noted in his letter that the international validation study "may take several years" and that the *in vivo* work will begin "when the SAG's exposure system is available." In contrast to the SAG, Motorola has already initiated a repeat of the Lai-Singh *in vivo* study (see *MWN*, J/F95).

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The **Los Angeles Cellular Telephone Co. (LACT)** is paying the **California Public Utilities Commission (PUC)** \$4.37 million to settle alleged violations of cellular tower siting rules. The PUC concluded that, "LACT knowingly and intentionally misled the commission by filing incorrect information," but felt that the intent behind the company's actions would be difficult to prove, according to a joint PUC-LACT statement. The settlement was also prompted by the fact that the investigation—which involved 150 LACT cell sites—would have required more than a year to litigate. The February 28 agreement gives LACT two years to bring its sites into compliance. The cellular phone company has also concluded an inquiry into an additional three sites for alleged "misrepresentation[s] to the PUC, premature construction and permitting deficiencies," with a settlement of approximately \$725,000, according to Ira Alderson, an attorney with PUC's safety and enforcement division. Both settlements stem from a PUC investigation begun in 1992 to determine whether cellular companies had had the necessary state and local permits before beginning construction. "We suspected that there was a widespread practice of not following the steps required by the PUC," said Alderson. The first phase of the probe focused on LACT, the Bay Area Cellular Telephone Co. (BACT) and GTE Mobilnet of California. GTE Mobilnet was fined \$343,000 for working on a site without permission and BACT was fined \$2,000 for not submitting required permits to the PUC. GTE Mobilnet has appealed the decision. In the second phase, the PUC required all California cellular carriers to file detailed information regarding their compliance with siting rules. The commission is approximately halfway through this portion of the inquiry, Alderson said. Some companies, including McCaw Cellular Communications, now a subsidiary of AT&T, and Mountain Cellular, have already settled with the commission, he added. "I think that because of the investigations, cellular companies are trying to comply more," Alderson noted.

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In the latest in a series of progress reports, Dr. **George Carlo** and other members of the **CTIA's SAG** research effort briefed representatives of federal agencies at FDA's Center for Devices and Radiological Health on March 17 in Rockville, MD. After the meeting, one attendee said: "The epi work seems to be progressing, but the other studies are moving very slowly." Another commented that, "It's not only a question of speed, we don't know where they are going," adding that after the meeting, "We decided that the federal agencies needed to coordinate better." And a third attendee expressed concern that, "There isn't enough emphasis on cancer promotion studies." All those who offered their views asked for anonymity.

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U.K. defense experts have now ruled out **EMI** from a cellular phone as a potential cause of a **helicopter crash** that killed 24 top intelligence officers in Scotland last June, according to the February 5 edition of the U.K.'s *Sunday Express* (see

MWN, S/O94). Investigators are now looking into the possibility that the Chinook helicopter was sabotaged.

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In March, Dr. **Donald McRee** joined CTIA's SAG as the director of extramural research upon his retirement as chief of the National Institute of Environmental Health Sciences' Environmental Health Resources Branch. McRee is a former president of the Bioelectromagnetics Society (1982-83). He was

later appointed as the editor of the society's journal, *Bioelectromagnetics*, but was forced to step down when neither the institute nor the society provided him with administrative support (see MWN, M/A88). McRee did research on microwave bioeffects for nearly 20 years before taking on administrative duties. In one of his dosimetry studies, he reported that local specific absorption rates (SARs) in the brains of rat cadavers were two to three times higher than the whole-body SARs (see *Health Physics*, 46, pp.315-320, 1984, and MWN, My84).

Cell Phone Company Manager with Brain Tumor Sues Motorola; CTIA and Carlo Charged with Conspiracy To Deceive Public

Debra Wright, an Arizona-based manager for Bell Atlantic Mobile, has filed suit against Motorola Inc., charging that its portable cellular phones caused or aggravated her brain tumor. Motorola is also accused of failing to test the phones for safety or to warn users of health risks, and of conspiring with other parties to deceive the public about the health risks posed by cellular phones.

Others named in the conspiracy charge are the Cellular Telecommunications Industry Association (CTIA); Dr. George Carlo of CTIA's Scientific Advisory Group on Wireless Technology (SAG); Ron Nessen, CTIA vice president for public affairs and communications; and Carlo's consulting company, Health and Environmental Sciences Group Ltd.

Nationwide, there are now eight lawsuits pending that seek to link cellular phones to brain cancer, but this is the first by an employee of a service provider. It is also the first such case to name the CTIA, Nessen or Carlo as defendants. The suit, filed in an Illinois state court on March 2 in Chicago, is not expected to go to trial until 1998 or 1999.

"This case uncovers the methods the industry has used to avoid telling the truth to the public. It was decades before this happened in the tobacco industry, before their propaganda machine was exposed," said Wright's attorney, Robert Holstein of Holstein, Mack & Klein in Chicago. He said that Wright learned of her cancer in December 1993, on the same day CBS News announced Motorola engineer Robert Kane's lawsuit over his own brain tumor (see MWN, J/F94). Holstein's firm represents Kane and three other plaintiffs in similar cases, in addition to Wright.

Wright has worked in the cellular industry since 1988, first for US West Cellular and then for Bell Atlantic Mobile. "I used only Motorola's portable cellular phones," she said in an interview from her home in Gilbert, AZ, where she is recovering from her second round of brain surgery. "And I was a heavy user." She added that her tumor is located "exactly where I'd been holding the phone ever since I was in the business."

The defendants have issued strong denials. "We sympathize with the individual in question," said a press release from Motorola. "However, we have seen these same opportunistic lawyers before. They are dealing in junk science and baseless theories to pressure Motorola into out-of-court settlements."

"This case is not about safety or the scientific process," CTIA spokesperson Mike Houghton asserted in an interview.

"It's about greedy tort lawyers."

In a written statement, Carlo said, "I am unable to comment on any specific aspects of the lawsuit." But he insisted that, "The SAG's work is an open book."

The suit has drawn attention to a CTIA workshop held last December in San Diego, at which Carlo and Nessen were the main speakers (see box, p.12).

As an example of what it calls "the CTIA's deceptive and false pronouncements," the complaint cites a 1993 statement to the *Wall Street Journal*: "There have been thousands of studies that have shown these phones are safe."

When asked if the CTIA still stands by that statement, Houghton said, "Back in 1993 we said there had been thousands of studies that were either around, near or at the cellular range. As we've gone forward, as the SAG has been established, it has become apparent that more specific studies are needed....The statement I'd make today is that there is no evidence that would lead us to suspect any biological reason why they might cause any harm."

Last November, Wright asked Bell Atlantic Mobile for any information they had on research showing that portable cellular phones are safe. "You know what they gave me a week later?" she recalled. "This little CTIA brochure folded in thirds. My manager said, 'This is all we have.' The truth is, there is no research proving safety. It's not there."

The brochure in question was printed in January 1993, according to Houghton. Titled *Safe Cellular Phones*, its first paragraph contains this sentence in bold: "The research has shown overwhelmingly that the radio transmissions from cellular telephones pose no health risk."

Asked whether the CTIA would say that today, Houghton answered, "It's not a yes or a no question. At that point in time, that is what was known." He added, "We take comfort in the fact that every day they *don't* find something is more evidence in support of our original proposition."

Wright insisted that, "You're not talking to a disgruntled, nonperforming employee." When she worked in phone sales for US West, Wright says, she was twice named salesperson of the year for the Southwest region. Just days before her suit was filed, she was promoted from assistant manager to manager of Bell Atlantic Mobile's real estate division in the Southwest.

"I've sold a lot of phones," said Wright, breaking into tears. "I might have jeopardized a lot of people's lives." But Wright

San Diego CTIA Meeting Sparks Conspiracy Lawsuit

Debbra Wright decided to sue the CTIA and Dr. George Carlo only after attending a CTIA workshop held last December in San Diego.

"Originally I was just going to sue Motorola," said Wright, "but that's when I decided that I had to sue the CTIA, too. They are hiding the truth." The complaint alleges that at CTIA seminars and workshops, "industry personnel are instructed on how to deceive and misrepresent the safety of the cellular portable telephones."

"It's absolute nonsense," countered CTIA spokesperson Mike Houghton. "That's a greedy lawyer trying to make a routine meeting into something nefarious. It's not anything we're ashamed of." Wright's attorneys have obtained a court order to protect records of the meeting.

Wright said she met with her supervisor on November 28, 1994, and told him she was preparing to sue Motorola. "To be fair to Bell Atlantic Mobile, I thought I should let them know." A week later, "He told me that the CTIA was having this seminar in San Diego, 'and I want you to go.'"

Wright attended the December 13 workshop with several other Bell Atlantic Mobile employees. "It was an eye-opening meeting," she recalled. "Most of it was about how to control the media."

"I had assumed that since the CTIA was supposed to have all this research, the science was what was going to be discussed," she explained. "I was really surprised when I found out that the whole purpose of the CTIA was to keep the public from knowing that the studies hadn't been done, to keep their attention away from the scientific process."

Houghton, who also attended the meeting, described it differently: "The seminar was talking about cellular tower siting and electromagnetic compatibility [EMC] issues. A lot of it was about how to deal with reporters who may have been led astray by litigation cases, who may not know the facts."

Also at the meeting was Robert Kane, the Motorola engineer with brain cancer who has filed his own suit against the company. "One of the strong focuses of the material they handed out was the portable cellular telephone issue," Kane said, "and how industry people should respond to media questions about safety." Kane registered for the meeting but was thrown out before it began. He refused CTIA demands that he give back his seminar materials.

According to Wright, CTIA speakers at the seminar expressed concern that if the industry came under more government regulation and failed to control its image in the media, it could suffer the same fate as the nuclear power industry.

Carlo was a featured speaker, with two long presentations. Reading from her notes, Wright quoted Carlo as saying, "We need to avoid having the Food and Drug Administration get involved in regulating us. This is bad news for us."

During a discussion of how to divert media attention away from research on safety issues, according to Wright, Carlo made these comments: "Scientists are very dangerous. If you turn it over to the scientists, they will usually come

back with more questions than answers....It is dangerous to allow reporters to report on studies."

Asked about these alleged remarks, Carlo issued a statement: "I'd like to respond to that, but my lawyers have advised me not to comment on matters in litigation."

Wright said that several speakers feared possible media attention to the EMC issue, as it concerns cardiac pacemakers (see *MWN*, J/A94). Wright told *Microwave News* that she had never before heard that this might be a problem, and that she asked who would warn the public. She said that Liz Maxfield, CTIA vice president for industry affairs, stated that it was up to the physicians who had installed the pacemakers, since they had lists of their patients. According to Wright, Maxfield said it was not the industry's responsibility.

"That's when I said enough's enough," said Wright. "There's no way you can excuse that kind of disregard for people's lives."

Maxfield and Houghton both denied that Maxfield had said this. Houghton said Maxfield mentioned that cellular phone manufacturers were considering common language for user manuals to urge those concerned to consult pacemaker manufacturers or their physicians to learn if their devices are adequately shielded. "But we did not say that if there's a problem, we have no responsibility."

Houghton pointed out that telecommunications companies are sponsoring research on EMC at the University of Oklahoma (see *MWN*, J/A94), and said, "The industry, as an industry, is going to wait and see whether there is an actual problem. We're waiting for results from these studies."

Kane registered for the meeting by fax, and was seated without incident. "But then Mike Altschul, CTIA's general counsel, sat down next to me and said I had to leave," according to Kane. "He said they'd called Motorola and that I wasn't authorized to represent the company. I said I'd never claimed that I was."

After arguing with Altschul, Kane said that, "I could see they just weren't going to start until I left. So I picked up my handouts and was herded towards the door. Altschul demanded the papers back. I said no, I'd already paid for them. So he popped out his wallet to give me cash, but I declined." Kane added that a few days later the CTIA "Fed-Exed me a nasty letter," again demanding return of the workshop materials.

On March 31, Wright's attorneys were granted a court order protecting documents related to her suit. CTIA's Houghton said, "We'll comply fully with any order, because we have nothing to hide."

The motion specifically called for protection of a videotape of the San Diego seminar. However, Houghton said that the only part of the meeting that had been taped was "for media training. But that's always destroyed immediately afterwards. That's standard operating procedure for media training, because it can be embarrassing....[Sometimes] it's not the kind of thing you'd want your boss to see."

added that she takes comfort from the attitude of others who work in the cellular phone business. "I can't tell you the number of people in the industry who've called me giving support. They're saying that the truth has got to come out."

Carlo's attorney said that his legal expenses will be paid by the escrow fund established by the CTIA to finance the SAG's research effort. "Legal representation and liability coverage are normal operating expenses of the scientific research program," James Baller of the Washington law firm of Baller Hammett explained in a statement. Carlo and his consulting company are named as defendants in the lawsuit, but the SAG itself is not.

Suit Blames Texas Utility (continued from p.1)

allegations. He asserted that, "There is no scientific evidence that shows cause and effect between EMFs and leukemia."

EPRI spokesperson Barbara Klein in Palo Alto, CA, said that the institute's attorneys have also filed a response denying the charges. She added that, "It is our long-standing policy not to comment on pending litigation." EPRI has retained the law firms of Cooley, Godward in Palo Alto, CA, and Fulbright & Jaworski in Houston, whose Otway Denny, past president of the Houston Bar Association, will be working on the case.

Only one case dealing with EMFs and childhood cancer has ever gone to trial. In 1993, Michelle and Ted Zuidema lost a lawsuit charging that San Diego Gas & Electric power lines had caused their daughter Mallory to develop a rare kidney cancer known as Wilms' tumor (see *MWN*, M/J93). Several epidemiological studies have indicated a link between EMFs and both childhood leukemia and brain tumors; no such association has ever been shown for Wilms' tumors.

The Texas case "absolutely has the attention of the utility industry," attorney Mark Warnquist of the Denver office of LeBoeuf, Lamb told the *Houston Business Journal* (March 31). "You've got Jamail, 11 kids with cancer, a conspiracy claim and a Harris County jury....Harris County is not the worst in the country for jury verdicts. But it ranks up there."

One of the plaintiffs, the Fewell family, lived next to seven sets of transmission lines. Their son Kyle was diagnosed with ALL in mid-1994 and is now undergoing chemotherapy. Kyle Fewell's school is also near high-voltage power lines. Another party to the suit is the Hickey family, whose son is also being treated for ALL. According to the complaint, the Hickeys' backyard bordered on eight sets of high-voltage transmission lines.

Other families lived over buried power cables or near transformers, distribution lines or electric meters. The suit charges that "the magnetic fields secretly and silently invading" their homes from these facilities were "well in excess of the level proven to cause childhood cancers."

ALL is a cancer that occurs predominantly in children, with an annual incidence of about 4 cases per 100,000 in American children two to ten. According to the Leukemia Society of America, it is cured about 65% of the time. Three of the children involved in the lawsuit have died; two had ALL.

The complaint alleges that HL&P conspired with EPRI "to hide the effects of their wrongful conduct and to conceal their wrongful actions... [and] to falsely persuade plaintiffs,

the public at large and the responsible governmental entities that magnetic fields present no cancer danger or any other form of danger."

The suit describes the conduct of HL&P and Houston Industries in the following terms:

Every death and cancer...could easily have been prevented by the defendants [who] have long had the knowledge and technology available to completely insulate the public from the dangers of magnetic field exposures. They have knowingly chosen to conduct their operations, however, in a reckless and unsafe manner for the purpose of avoiding the extra expenses associated with safely conducting their operations. In sum, the deaths and cancers inflicted on the innocent children and their families in this case were allowed to occur by the HL&P defendants in this case so that [they] could maximize their profits.

The lead plaintiff is Joyce Bicki; the lead defendant is Houston Industries.

This is not the first time HL&P has been involved in an EMF lawsuit. In a judgment handed down in 1985, the company was ordered to pay more than \$25 million in punitive damages to a school district for siting a 345 kV power line on school property in "reckless disregard" of children's health. The award was later reversed, but not before the utility had moved the line off school property (see *MWN*, N/D85, N/D 87, J/A88 and M/J89).

Attorney Joe Jamail (continued from p.1)

have social ramifications like those recalls," Jamail later told Donald Vinson, author of *America's Top Trial Lawyers*. "I take a lot of pride in something like that."

This past January, Jamail won a settlement reported at over \$100 million in a suit accusing a Bryan, TX, chemical plant of causing infant deaths and birth defects by polluting the air and water with arsenic. Among his other big victories was the MiniScribe case, a 1992 securities fraud lawsuit in which the jury awarded \$568 million in damages.

Jamail, 69, is the sole owner of his law firm, which employs eight attorneys. The firm's winning record has made Joe Jamail one of the ten richest people in the state of Texas, with an estimated wealth of \$700 million.

What's the secret of Jamail's success? "He is the master of creating a morality play of right and wrong," according to a defense lawyer who has followed his career closely. During one trial, defense counsel kept emphasizing the size of the fee that Jamail stood to gain if he won the case. Jamail later recalled to Vinson: "Finally the other lawyer asked, 'What do you think Mr. Jamail's going to do with that money?' Well, that invited me: 'Your Honor, he's now invited me to tell you and this jury what I'm going to do with my fee. Most of it I am going to give to Galveston charities for underprivileged children,' and I sat down. My client won."

Jamail has been criticized for his high fees, but he feels he's earned them. "If I didn't win," he told *Forbes*, "I wouldn't get paid."

Jamail did not respond to *Microwave News'* requests for an interview about the Texas EMF lawsuit.

FROM THE FIELD

Paul Brodeur on Nebraska Childhood and Worker Cancer Clusters

Reprinted below are excerpts from Paul Brodeur's testimony before the Nebraska state legislature's Natural Resources Committee on February 8, 1995, in Lincoln. In his testimony, Brodeur refers to a cluster of 17 cases of childhood cancer in west-central Omaha, zip code 68144. The school attended by Kevin Larm, who has leukemia, is in zip code 68144. Kevin Larm and his family met with President Bill Clinton last March and urged him to issue an executive order to reduce EMF exposures from power lines and substations (see MWN, M/A94 and N/D94). A paperback edition of Brodeur's book, The Great Power Line Cover-Up: How the Utilities and the Government Are Trying To Hide the Cancer Hazards Posed by Electromagnetic Fields, was published in February by Back Bay Books, an imprint of Little Brown & Co.

I have been asked by the group called People Organized for Wise Energy Representation to present to you today the medical and scientific evidence regarding the cancer hazard posed by exposure to [EMFs] given off by high-voltage and high-current power lines....

The evidence that power line [EMFs] can either cause cancer or promote its development is not at all inconclusive, as you have been led to believe by previous witnesses, but is very powerful. The evidence is, in fact, so powerful that I believe it will persuade you to support the resolution before you, which calls upon the Nebraska Public Power District [NPPD] to delay construction of the 96-mile-long, 345 kV Pauline-Moore transmission line until November 1995 or later....

I will start out by telling you that a majority of the medical and scientific studies published in the peer-reviewed medical literature show that children living in homes near high-voltage or high-current power lines, as well as workers exposed to [EMFs] on the job, are developing cancer at significantly higher rates than children and workers who are not exposed, or who are less exposed.

I offer as documentary proof of this statement an 11-page summary of the findings of the epidemiological studies of the cancer-producing effects of [EMFs] as compiled by the National Library of Medicine [NLM] in Bethesda, MD. I wish to emphasize that this list of epidemiological studies and their findings comes from the medical database of the [NLM]. It includes the childhood residential studies and the adult occupational studies with original data that have been published in the peer-reviewed medical literature....

...[M]ost of the so-called "negative" studies that have been cited by previous witnesses and by electric utility officials as finding no cancer hazard associated with [EMFs] are not, in fact, peer-reviewed studies of cancer in human beings. Most of these negative studies do not contain any original data, nor have they been subjected to peer review. Most of them simply contain the undocumented opinions and assertions of members of ad hoc committees, who are often paid consultants of the electric utility industry....

Keeping in mind that...11 studies comprise the total number of childhood cancer EMF studies in the peer-reviewed medical literature, please note that eight out of the 11 show that children living in homes near high-voltage or high-current power lines suffer a statistically significant increased risk of developing cancer—mostly leukemia, brain cancer and lymphoma—when compared to children who do not live in such homes.

Thus, an overwhelming majority of the childhood residential studies published in the peer-reviewed medical literature and compiled by the [NLM] show positive findings for cancer...So much for the claim of the electric utility industry that this is "junk science."...

I have carefully reviewed the testimony given by Dr. Thomas J. Safranek, the epidemiologist employed by the state of Nebraska Department of Health [NDOH], who appeared before you on December 17, 1994. I find no mention whatsoever in his testimony of the childhood residential studies....

[Y]ou will see that a clear majority of the occupational studies show that workers exposed to [EMFs] on the job are developing brain cancer, leukemia and lymphoma far more readily than other workers or less exposed workers....

To summarize: There are 30 occupational studies on the [NLM]

list before you...24 out of the 30 show a statistically significant increased risk of cancer among workers exposed to [EMFs] on the job. 22 of the 30 studies show excess brain cancer among workers exposed to [EMFs].

Incidentally, two very recent occupational studies have not been included on the list before you. One of them is a study conducted by researchers at McGill University in Montréal of 223,000 electric utility workers in France and Canada [which] found that workers with heavy exposure to EMFs had two-and-a-half times the incidence of leukemia as workers with less exposure. Another occupational study was published just last month...by Drs. [David] Savitz and [Dana] Loomis of the University of North Carolina [which] found that those men with heavy exposure to EMFs were dying of brain cancer more than two-and-a-half times as often as less-exposed workers....

I would like now to turn to a different subject—the record of the [NPPD] with regard to forthright disclosure about the medical studies showing the cancer threat posed by exposure to [EMFs].

On July 7, 1994, Mr. R.G. Oswald, the project manager for the [NPPD's] proposed Pauline-Moore high-voltage transmission line, wrote to Senator Robert Kerrey and told the senator that, "Out of 20 epidemiology studies compiled over the past 15 years, only three show an association between cancer and [EMFs]."

How can that statement possibly be true...?

This same [NPPD] official wrote letters to Senator Kerrey on January 7, 1994, and on July 7, 1994. Each of these letters contains the following sentence: "It seems that for every study that shows a possible relationship [between cancer and exposure to EMF] there is an equally respected study which shows no relationship."

Members of the committee, the [NPPD] has blatantly misrepresented the medical findings about the cancer hazard posed by exposure to [EMFs] to the U.S. senator from the state of Nebraska....

...[Y]ou will remember that when Dr. Safranek testified before you on December 17, he mentioned an investigation that he and some colleagues in the [NDOH] had conducted regarding a cluster of childhood cancer that had occurred among children living in four adjoining zip code areas in the west-central section of Omaha. He told you that 38 cancers had developed among these children during the five-year period between 1987 and 1991. He and his colleagues acknowledged that this was 22 more cancers than should have occurred among these children during that period of time.

In their report, which is dated January 25, 1994, Dr. Safranek and his colleagues in the [NDOH] declared that because the types of cancer that afflicted the children in the four-zip-code area were "quite diverse," no causal agent could be identified. They concluded by saying that, "For this reason, the [NDOH] has decided not to initiate any further study of this cluster, although as a precautionary measure, the NDOH will continue to monitor the incidence of cancer in this area."

This decision is somewhat puzzling, because a list of the 38 childhood cancers...[in] the report shows that 17 of them are cancers known to be associated with exposure to [EMFs]. They include six malignant brain tumors, three leukemias, three cases of non-Hodgkin's lymphoma, three melanomas of the skin, one case of Hodgkin's disease and one additional cancer of the blood-forming system....

In the concluding section of their report, Dr. Safranek and his col-

leagues declared that, "There is little environmental information to suspect that this particular section of the city [the four-zip-code area] harbors a unique risk to children for developing cancer." Elsewhere, however, they acknowledged that in one of the four zip codes—68144—17 children had developed cancer, whereas only 6.4 cancer cases were expected, and that the American Telephone & Telegraph Company (AT&T) operates a large manufacturing plant on the southern boundary of this zip code....

During the past three years, a major workmen's compensation action has been making its way through the Nebraska state courts. The plaintiffs in the case are the survivors of seven men who died of malignant brain tumors during the five-year period from 1989 to 1994. The workmen's compensation action alleges that the seven dead workers developed brain cancer as a result of occupational exposure to [EMFs].

All seven men worked at the AT&T plant. Not only did all of them work at the plant, they all worked in Building 30 at the plant. Not only did they all work in Building 30, they all worked in the southern portion of Building 30. The southern part of Building 30 is the site of an extensive electroplating operation, many welding assembly lines and a carbon-block operation.

Large rectifiers are used to convert alternating current to direct current in the electrolytic process of the electroplating operation. These rectifiers produce immensely powerful [EMFs]. So powerful are these fields that some men working near the rectifiers report that their hair stands on end, and that they have to remove their wristwatches, because the strong magnetic fields make the watches go "haywire."...

Radiofrequency [RF] energy is used in the carbon-block operation. So powerful is the [RF] radiation given off by the heat sealers on the south side of Building 30 that during the 1980s it interfered with the communications of planes flying into and out of the Strategic Air Command (SAC) center at Offutt Air Force Base. It also interfered with the communications of amateur radio operators in the Omaha area. The problem was solved by building a Faraday cage around the workers in the carbon-block operation to keep the radiation inside the plant.

The seven deaths from the brain cancer among men working in Building 30 is considered to be extraordinary by all of the medical researchers and neurological scientists with whom I spoke last week. Indeed, it is 10 to 12 times the number of brain cancer deaths that should have occurred during that five-year period among the men who worked in Building 30.

During the past 20 years, a total of 13 brain cancer deaths are known to have occurred among men working in the south portion of Building 30. However, the medical researchers I spoke with caution that because of turnover in the work force, and the fact that many former workers in Building 30 have undoubtedly left the Omaha area, the incidence of brain cancer among these workers is bound to be much higher. In addition, unconfirmed reports indicate that an unusually large number of men who worked in Building 30 have died of leukemia and

lymphoma.

Obviously, the cancer hazard in Building 30 should be the subject of an immediate investigation by the National Institute for Occupational Safety and Health.

Meanwhile, a potential connection between the cancer tragedy among the men who worked in Building 30 and the cancer tragedy occurring among children living in the zip code areas to the north is not hard to make. The huge AT&T plant in west-central Omaha uses huge amounts of electrical energy. This electrical power is supplied to a substation near the plant by two high-voltage transmission lines that run along separate corridors through residential neighborhoods in two of the zip codes where children are developing excess cancer. These two lines pass within 40 to 50 feet of many homes and office buildings. A 345 kV transmission line—the same type as the proposed Pauline-Moore line—runs through three of the zip code areas where children are developing excess cancer. It passes within 100 feet of some homes.

Anyone driving through these areas, as I did yesterday, will be struck not only by how close the high-voltage transmission lines are to homes, but also by the large number of electrical substations that are present in these neighborhoods, and by the large number of high-current feeder lines that emanate from these substations. These high-current feeder lines give off very strong magnetic fields and they are dangerously close to hundreds of homes. Anyone who measures the strength of the power-frequency magnetic fields at the doorways of such homes, as I did yesterday, will find that these fields are often many times stronger than the fields associated with cancer in the peer-reviewed childhood and occupational studies compiled by the [NLM].

Yet [NDOH] officials never took a single [EMF] measurement when they investigated the cluster of 38 cancers among the children living in the four contiguous zip codes. Nor did they bother to investigate whether the childhood cancer victims lived near the high-voltage transmission lines feeding electricity to the AT&T plant. Or whether they lived near the many electrical substations and high-current feeder lines in these neighborhoods. Nor did the state health officials bother to look into the incredibly high rate of brain cancer deaths among men working in Building 30 at the AT&T plant. Or take into consideration the fact that the tragic situation there may be connected with the high cancer rate among the children in the four nearby zip codes.

Do the [NDOH] officials even know about the extraordinary brain cancer cluster among the men working in Building 30?

Instead of conducting a thorough investigation of the cancer cluster in the four contiguous zip code districts of west-central Omaha, the state health authorities declared that, "There is little environmental information to suspect that this particular section of the city harbors a unique risk to children for developing cancer," and announced that they had decided not to initiate any further study of the childhood cancer cluster.

Members of the Natural Resources Committee, allow me to suggest that when the citizens of Omaha and elsewhere in Nebraska learn, as I did last week, that the incidence of childhood cancer in the four zip code areas of west-central Omaha remained high for the sixth year in a row during 1992—the most recent year for which cancer statistics are available from the Nebraska Cancer Registry—they may well demand that their representatives in the state legislature take action to reduce the exposure of unsuspecting Nebraskans to [EMFs].

In closing, I hope that I have raised some questions in your minds about the potential cancer hazard that will result from exposure to [EMFs] given off by [NPPD's] proposed 345 kV Pauline-Moore transmission line. I thank you for allowing me to bring the important public health hazard posed by power line emissions to your attention. I trust that you will give it serious consideration.

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EXPOSURE ASSESSMENT

Sewing Machine Fields...The DOE's RAPID engineering program will characterize the EMFs from sewing machines (see also, p.7). The project was prompted by a U.S.-Finnish study showing consistently higher rates of Alzheimer's disease among EMF-exposed workers, especially dressmakers and sewers (see *MWN*, J/A94). Preliminary measurements by NIOSH's Dr. Joseph Bowman found that sewing machine operators' heads were exposed to 2-11 mG, and that the readings were as high as 200 mG at knee level. "We expect to ask the Battelle Pacific Northwest Lab in Richland, WA, to assess worker exposures from sewing machines in Finland and to characterize the fields from typical units," said Lynne Gillette, manager of the DOE EMF RAPID Program. The NIEHS is also exploring ways to further the work of Dr. Eugene Sobel of the University of Southern California School of Medicine in Los Angeles, according to NIEHS' Dan Vandermeer. Sobel, who announced the EMF-Alzheimer's link last year, is presently on sabbatical in Finland.

MEDICAL APPLICATIONS

Diathermy Study Challenged...Last year, Drs. Rita Ouellet-Hellstrom and Walter Stewart of the Johns Hopkins University (JHU) School of Public Health found a significantly elevated risk of miscarriage among physical therapists who administered microwave (MW) diathermy during or shortly before their first trimester of pregnancy. In contrast, shortwave (SW) diathermy therapists had no elevated risk (see *MWN*, J/F94). Now, Drs. Bruce Hocking and Ken Joyner of Telecom Australia in Melbourne are disputing those findings. Writing in the February 1 *American Journal of Epidemiology* (141, pp.273-274, 1995), they argue that since 27.12 MHz SW radiation penetrates more deeply than 2450 MHz microwaves, it should have the greater effect—assuming, of course, that there is an effect—in early pregnancy when the fetus is buried deeply within the mother's abdomen. The Australians conclude that the failure of the epidemiological results to conform to this model undermines the JHU team's claim of a MW effect. Ouellet-Hellstrom and Stewart disagree. The differences in penetration do not explain the association, they concede, but they contend that some other factor might. "The data are fixed, but the possible explanations are not!" they write, suggesting that, "One should examine the extent to which competing explanations are supported by data, not whether data are supported by competing explanations."

MEETINGS

Medical Device EMC...The FDA and the Association for the Advancement of Medical Instrumentation (AAMI) are jointly sponsoring a conference on *Electromagnetic Compatibility for Medical Devices: Issues and Solutions* in Anaheim, CA, May 24-25, to heighten awareness of potential EMI/EMC problems and to provide an "open (nonthreatening) forum" to discuss them. Among the speakers will be Howard Bassen, Dr. Elizabeth Jacobson and Jeffrey Silberberg, all of the FDA; Dr. Bernard Segal of the Jewish General Hospital in Montréal,



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Canada, will speak on "The Potential Magnitude of the EMI Problem." A representative of Motorola is expected to review possible EMI from cellular phones. To register, contact: AAMI, 3330 Washington Blvd., Suite 400, Arlington, VA 22201, (800) 332-2264 or (703) 525-4890, ext.260, Fax: (703) 276-0793. (For more on this issue, see p.12 and *MWN*, J/A93, N/D93 and J/A94.)

Ultrawide Band Measurements...A symposium on *Current Issues in RF Radiation and Ultrawide Band Measurements* was held at the Armstrong Lab (see below), February 13-16. Thirty-five participants attended the by-invitation-only meeting, which was chaired by Richard Tell, a consultant based in Las Vegas.

MILITARY LABS

Brooks AFB May Close...On February 28, the Pentagon issued a list of bases that it proposes to close. Among the 33 large installations is Brooks Air Force Base (AFB) in San Antonio, home to the Armstrong Lab, where most of the U.S. research on the biological effects of RF/MW radiation is carried out—much of it cloaked in secrecy. This is ironic because the Air Force had spent years convincing the Pentagon to transfer the Army's and Navy's RF/MW research labs—then located in Bethesda, MD, and Pensacola, FL, respectively—to Brooks (see *MWN*, J/A92). The IEEE has started a lobbying campaign to keep the Armstrong Lab open. In a March 15 memo, Dr. Eleanor Adair of the John Pierce Foundation in New Haven, CT, wrote to members of the SCC28 subcommittee that wrote the 1992 ANSI/IEEE RF/MW exposure standard, urging them to contact their elected officials because, "There can be no doubt that many critical questions relating to human health effects of exposure to [RF/MW radiation] remain to be answered." Adair noted that it would cost an estimated \$40 million to move the lab and that it could continue to operate autonomously even if Brooks closes down.

PEOPLE

Two members of the National EMF Advisory Committee have changed jobs. Dr. **James Melius** has left the New York State Department of Health in Albany to become the scientific and medical director of the Center to Protect Workers' Rights in Washington. The center is the research arm of the Building and Construction Trades Department of the AFL-CIO. And **John Coughlin**, an attorney who played a key role in setting up the RAPID program, has left the Wisconsin PSC to go into private practice as a mediator and arbitrator in Madison, WI. ...**Ramona Trovato** has taken over from **Margo Oge** as the director of EPA's Office of Radiation and Indoor Air. Another new member of the EPA EMF team is **Denise Settles**, an epidemiologist....**Martha McNeal** has left PG&E in San Francisco, where she was the EMF program director, to start a consulting firm in West Palm Beach, FL, to help utilities set up EMF programs....**Dan Bart** has been promoted to the position of vice president for standards and technology for the Electronic Industries Association and the Telecommunications Industry Association.

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POLICE RADAR LITIGATION

Medical Monitoring Suit Defeat...An Illinois judge has dismissed a class action suit seeking medical monitoring of police radar equipment users. On February 27, Cook County Circuit Court Judge Margaret Stanton McBride ruled in favor of a motion by attorneys for Kustom Signals Inc., MPH Industries Inc. and Decatur Electronics Inc., the manufacturers of radar guns being sued by Harold Blesy and five other police officers suffering from cancer. The decision to seek regular health exams and funding for related research, instead of personal injury damages, is a new legal strategy to link cancer and police radar. But the defense argued that even if it were shown that radar equipment could increase the plaintiffs' chances of developing cancer, this would not give them a basis to sue. Defense lawyers contended that state law requires proof of responsibility for a specific injury. "Illinois has a very strong injury-in-fact requirement," said attorney Patrick Morris of the Chicago firm of Johnson and Bell, who represents MPH Industries. Morris added that this requirement is less clear-cut in California, New York, Ohio, Pennsylvania and perhaps other states. Judge McBride accepted the motion to dismiss without issuing a written opinion or making any verbal comment. Plaintiffs' attorney Norman Rifkind of Biegel, Schy, Lasky, Rifkind, Goldberg and Fertik in Chicago said that the complaint had been dismissed without prejudice, and that his firm filed a motion for clarification on April 3.

RESOURCES

Collection of ELF and RF/MW Papers...The January/February 1995 issue of *Radio Science* features 11 articles on "Electromagnetics in Biology and Medicine." The special section was edited by Dr. Maria Stuchly of the University of Victoria, Canada. Among the papers are: Dr. V.F. Zolin's well-referenced review of "Bioelectromagnetics in Russia," Sweden's Drs. Bo Holmberg and Agneta Rannug on "Magnetic Fields and Cancer Development in Animal Models" and EPRI's Dr. Stan Sussman on exposure assessment in ELF studies and Dr. Om Gandhi on dosimetry at ELF and RF/MW frequencies.

Carpenter on Childhood Cancer Risk..."The association between residential exposure and childhood cancer is, in my judgment, strong, and growing stronger," concludes Dr. David Carpenter, dean of the School of Public Health at the State University of New York, Albany, in a review of six residential studies on the potential link between magnetic field exposure and childhood cancer. The review is followed by commentaries by 11 researchers—including Drs. Devra Lee Davis, Paul Héroux, Rosemonde Mandeville, Indira Nair and Nancy Wertheimer—most of whom agree with Carpenter's evaluation. *Epidemiological Evidence for an Association Between Exposure to 50 and 60 Hz Magnetic Fields and Cancer* (Paper No. 6, November 1994, 31 pp.) costs U.S.\$4.25 (C\$3.99 in Québec and C\$3.75 elsewhere in Canada) and is part of the James Bay Publication Series on the environmental impact of hydroelectric development. Order from: North Wind Information Services Inc., C.P. 38, Succ. Place du Parc, Montréal, PQ H2W 2M9, Canada, Fax: (514) 287-7355.

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