

Local situations reflect national debate on magnetic fields

By VICKI SPEER
Daily Herald Staff Writer 4.30.92

Five-year-old Kevin Pojman's fledgling school career is no longer haunted by the specter of risk.

The kindergartner has been protected not from traditional schoolyard hazards, but from a perceived risk emanating from the most commonplace of household necessities: electricity.

Worries about the potential danger prompted Kevin's mother, Elizabeth Pojman, to join a successful battle last winter to relocate a proposed Indian Prairie Unit District 204 elementary school within a Naperville subdivision. The relocation means

the Aurora youngster's education likely will never include a school under high-tension power lines.

The Pojmans are part of a nationwide debate over the possible health hazards posed by electric and magnetic fields generated by power lines — an emotional argument that has no clear-cut resolution. Uncertainty over the same issue has helped stir ongoing controversy over the proposed placement of high-tension power lines along the Illinois Prairie Path near Wheaton.

Some fear the fields spark cancer. Others point out studies have elicited no proof that danger exists.

"A lot of people say it's not proven," Elizabeth Pojman said. "But

"Although it can't be proven, I've read enough studies where they can't disprove it, either. People in this area don't feel like being guinea pigs."

—Wheaton resident Adele Southcott

it's not disproven. So why put our children at risk?"

While experts are for now stymied by the questions surrounding the health effects of electromagnetic fields, they can detail the basic properties of the fields.

The fields, known as EMF, exist in any item through which electric

power flows, experts say. Electric fields are created by the presence of an electric charge; so a switched-off lamp emits a field just as a burning lamp does. Magnetic fields are created by the flow of electricity, so a switched-off light would generate no magnetic field.

Among the factors affecting the

strength of the fields are the distance from their source, the power voltage and the amount of power flowing through the line.

Worries about electromagnetic fields apply to common household appliances as well as power lines. If the fields ultimately are a source of health concerns, appliances — which can be high consumers of power — also may prove a worry, said Stanley Sussman, program manager for the California-based Electric Power Research Institute, a research-sponsoring organization funded by the power industry.

"Appliances are one source of

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these fields, and could be more important, less important or as important as other sources," Sussman said.

That ambiguous statement reflects the uncertainty surrounding the phenomenon in general. No one knows for certain whether good reason exists to point an accusing finger at electromagnetic fields.

"It is clear that the situation is unclear," said Brian Quirke, spokesman for the U.S. Department of Energy. "And that is probably the thing that is most difficult about this situation."

Some studies show a statistical increase in certain types of maladies — most notably cancer — in people exposed to intense electromagnetic fields, but other research indicates otherwise.

No cause-and-effect link has been established between electromagnetic fields and the deadly disease, experts warn.

Researchers at three Chicago-area institutions — Argonne National Laboratory, in Darien; IIT Research Institute in Chicago and the University of Illinois at Chicago — are among those investigating the matter. They have come up with some small pieces to the puzzle.

The evidence is varied:

■ Results of a 14-year Argonne study show that electric fields generated by 60-hertz power — the frequency of electricity in the United States — can change the body clocks of rats and mice, giving them something like jet lag. The study results are likely to be published in the *Journal of Bioelectromagnetics* next year.

Downers Grove resident Kenneth R. Groh, whose specialty is chronobiology, or the study of body clocks, started his federally sponsored research at the Argonne laboratory in 1978.

Groh said his research included monitoring rats and mice to establish their body rhythms. Then, the animals were exposed to electric fields at power-line frequency. After four hours exposure, their body clocks were delayed for six or seven hours, causing them to sleep and eat at different times once a couple of days had passed, Groh said.

"I know we can affect biological rhythms with 60-hertz fields," Groh said. "My data says that."

Important factors in moving the animals' body clocks were the time of day they were exposed to the field and the season of the year, he said.

Groh plans to start a federally backed study of the effects of magnetic fields on the body clocks of mice this fall.

■ Early results from a 12-year research project coordinated by IIT Research Institute show that electromagnetic fields produced by U.S. Navy "extremely low frequency" radio transmitters have not affected surrounding wetlands, slime molds and bird communities. The study is due to conclude in 1994.

The Navy transmitters, located in Wisconsin and Michigan, use electromagnetic waves to send messages to submarines. The fields produced by the transmitters are slightly less intense than those produced by power lines, said Mount Prospect

resident Ralph Carlson, an engineer for IIT Research Institute.

"If we don't find anything, it doesn't mean there's nothing produced by power lines," Carlson said. "But it may be an indicator."

The research institute — a not-for-profit organization affiliated with the Illinois Institute of Technology, which has a campus in Wheaton — was hired by the Navy 10 years ago to investigate whether the transmitters affect the ecology of their host areas. Tests completed so far have turned up no evidence indicating any effects, Carlson said.

"It hasn't affected the wetlands. It did not show any effects on the life or growth of the slime molds," Carlson said. "It didn't show any effect on the bird population."

Carlson said IIT soon will embark on a multiyear government-funded study of the effects of magnetic fields on laboratory animals. The results will be important to the controversy surrounding electromagnetic fields, he said.

■ An ongoing study at the University of Illinois at Chicago has discovered changes in the spontaneous activities of nerve cells at high intensities of higher-frequency electromagnetic fields. The study has been broadened during the last several years to include lower-frequency fields, such as those emitted by power lines. Conclusions are expected in about three years.

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James Lin of Clarendon Hills, a principal scientist in that research, has been experimenting with electromagnetic fields for more than 20 years. During the last decade, Lin has investigated for the government the effects of the fields on animal nerve cells, looking for interaction between the fields and individual cells.

Even with the limited scientific data, concern about electromagnetic fields is great enough to prompt officials in private industry and government to sit up and take notice.

Researchers Nancy Wertheimer and Ed Leeper helped drive the discussion with the publication in 1979 of their well-known study proposing that children who live near thick, high-power lines were more likely to have childhood cancer.

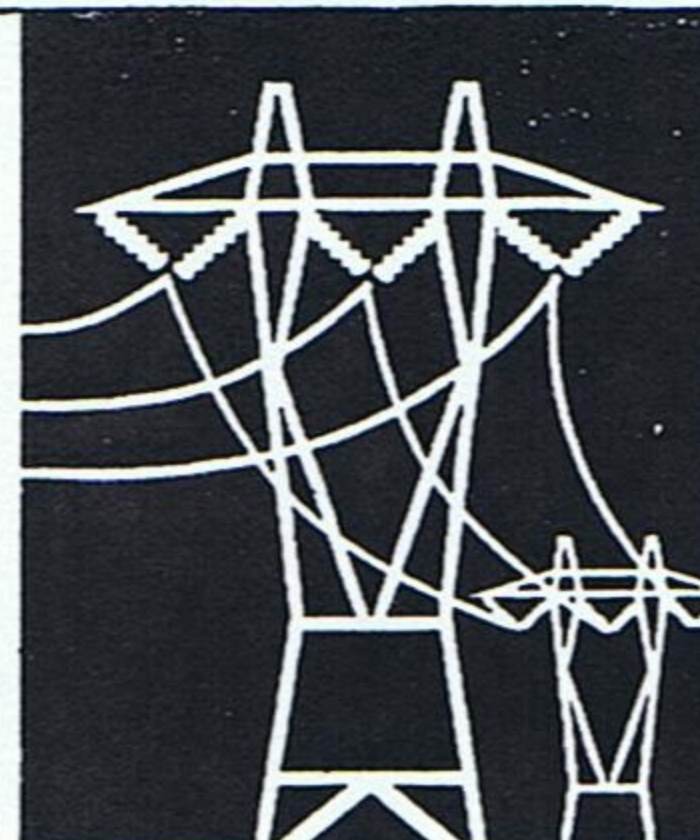
Spurred by the study's suggestion of the culpability of magnetic fields, the Electric Power Research Institute shifted its focus in the following years from electric to magnetic fields, said Sussman, program manager for the organization.

Conclusions cannot be drawn yet from the magnetic field studies still going on, he said.

Yet the possibility of health hazards is more than enough to sway hundreds of Wheaton and Warrenville residents opposed to Commonwealth Edison Co.'s plans to string lines along part of the Illinois

Federal investigation of EMF

The federal government set aside more than \$10.4 million for the 1992 fiscal year to research electromagnetic fields. An interagency report summing up the results of government EMF research is due out next month.



FEDERAL AGENCIES	FUNDING
U.S. Department of Energy	\$5 million
U.S. Environmental Protection Agency	\$1.8 million
U.S. Department of Health and Human Services	\$2.5 million
U.S. Department of Transportation	\$700,000
U.S. Small Business Administration	\$400,000
U.S. Department of Defense	Not available

*Includes funding of EMF research at National Institute for Occupational Safety and Health, \$200,000; National Institute of Environmental Health and Safety, \$1.3 million; and National Cancer Institute, \$1 million.

Source: Brian Quirke, spokesman, U.S. Department of Energy

Daily Herald Graphic

Prairie Path.

"Although it can't be proven, I think I've read enough studies where they can't disprove it, either," said Wheaton resident Adele Southcott, active in the fight against the proposal. "People in this area don't feel like being guinea pigs."

The City of Wheaton in January approved a requirement that electrical substation owners take "all reasonable steps" to reduce and mini-

factor — that's why we got involved."

While controversy rages over the validity of concerns surrounding electromagnetic fields, the U.S. government is investing at least \$10.4 million this fiscal year into looking for an answer to the power line debate.

As it stands, the U.S. Environmental Protection Agency offers information but no conclusions. The agency has no final word on electromagnetic fields, spokeswoman Anne Rowan said.

"Essentially, the agency's position is, we're sharing the information we have, but that information is inconclusive," Rowan said.

So, what's a homeowner to do?

Commonly recommended is a policy of "prudent avoidance." That means keeping people away from electromagnetic fields when the cost of doing so is not too high — doing such things as moving a motor-driven electric clock farther away from the head of a bed.

ComEd Area Manager Alan Wozniak said the utility — which stands against EMF regulation — does back prudent avoidance.

As does the U.S. Department of Energy's Quirke.

"I think prudent avoidance is pretty smart, especially in this period when we're not sure of the possible impact," Quirke said.

Yet disagreement emerges even here. Carlson, of IIT Research Institute, said it is fine if someone wants to be cautious, but Carlson is not bothering with it himself. People may be more alarmed by what they read than they need be, he said.

"I think the risks are low... that's my personal opinion, not based on very much," Carlson said.

Coming up with sound recommendations is the aim of the government research. While studies are under way, a federal interagency group, called the Committee for Radiation Research Programs Coordination, is preparing a summary of recently completed research within their departments.

The paper is slated for public release in mid-September.

Meanwhile, Rowan voices a widespread sentiment: "We just feel there's need for further research."