

WAVE NEWS quotes William Farland, director of EPA's health and environmental assessment office, as saying he made the change because he would have "concerns classifying [ELF fields] as a probable human carcinogen if I really did not understand how it was working."

In an April 25 letter to EPA Administrator William Reilly, Rep. Peter H. Kostmayer (D-Pa.) argued that EPA's technical reasons "for not formally classifying power-line electromagnetic fields as a potential carcinogen may have merit, but for the purpose of protecting American citizens the distinction is moot. . . . Electromagnetic fields have passed the 'duck test'; if it acts like a potential carcinogen, it must be addressed as a potential carcinogen."

But this potential carcinogen is like no other, according to a May 1989 background paper on its biological effects by the congressional Office of Technology Assessment (OTA). "ELF fields appear to be an agent to which there is no known analog," the OTA authors stated, noting that ELF effects on human tissue are subtle, complex and poorly understood, and that researchers don't even know what dose-related characteristics are important. "It may not be safe to assume that if ELF field exposure leads to health risks, exposure to stronger fields or exposure for longer periods is worse than

exposure to weaker fields or for brief periods," they wrote.

Even as EPA was completing its review, the AMERICAN JOURNAL OF EPIDEMIOLOGY published four more reports on ELF fields and cancer. One, in the May issue, showed no statistical link between a parent's work exposure to ELF fields and a child's chance of developing neuroblastoma, one of the most common childhood cancers. A similar study in the June issue found that men in certain industries face double the normal risk of fathering a child with neuroblastoma.

Two reports in the May issue focused on electric blankets. A study of white men turned up no link between the blankets and testicular cancer, while a study of women and children revealed a quadrupling in the risk of brain tumors among children whose mothers slept under electric blankets during the first trimester of pregnancy. The latter study, conducted by David Savitz and his co-workers at the University of North Carolina in Chapel Hill, also hinted that a child's use of electric blankets might increase his or her risk of childhood cancer by 50 percent, although the researchers say the subset of individuals involved was too small to be statistically significant.

Yale University researchers have begun documenting ELF exposures among 4,000 pregnant women. Because the aver-

age ELF exposures associated with electric blankets are so large, "we should be able to see the effects of those exposures if there are any," says epidemiologist Leeka Kheifets of the Electric Power Research Institute in Palo Alto, Calif., which is sponsoring the study.

EPA is now distributing a draft of its full report to two outside panels of scientific reviewers. Meanwhile, Congress stands poised to consider a pair of bills that could boost federal funds for research into the biological effects of electromagnetic fields, including ELF fields from residential power lines. — J. Raloff

Radiation limits to plunge

For the first time in 13 years, the International Commission on Radiological Protection (ICRP) will recommend a sharp reduction in current limits for exposures to ionizing radiation. "Radiation is more risky than we thought in 1977—a factor of three more dangerous," explained commission chairman Dan J. Beninson in announcing the decision last week in Washington, D.C.

ICRP is an independent scientific organization based in Didcot, England. Though compliance with its policies is voluntary, most governments base their nuclear regulations on them.

ICRP will call for reducing allowable annual worker radiation exposures from 50 to 20 millisieverts. (A chest X-ray, for comparison, typically delivers only 200 *micro*sieverts to the lung.) The guidelines would allow some flexibility, however, such as a five-year averaging of doses. The current 1-millisievert limit on annual doses to the public from human activities (such as power plant emissions) would remain, Beninson says, though the commission would lower the acceptable averaging period from a lifetime to just five years.

The new guidelines are not expected to affect most workers. Where radiation protection is good, Beninson says, most workers already receive doses "substantially below" the proposed limits.

Beninson says he expects ICRP to ratify the new proposals at its November meeting in England. After that, it could take governments three years or more to translate the proposals into working regulations. □

potions, probably had no important physiological effects, Biggs contends.

Gula's temple may hold pollen and seeds revealing other types of plants prescribed by Babylonian physicians, Gibson suggests. Moreover, he says, the site may illuminate the working relationships among an ancient trio of healing professions: physicians; magicians who devised spells to drive out disease-causing demons; and priests who prayed for healing. — B. Bower

Iraq temple may be ancient medical center

In a surprising discovery, archaeologists have found that a huge temple excavated in Iraq was dedicated to the Babylonian goddess of healing, until now considered a minor deity by researchers. The temple apparently served as a center of healing activities, reports McGuire Gibson of the University of Chicago's Oriental Institute, which released news of the discovery last week. Further work will yield important insights into early medical practice, he asserts.

The temple is in Nippur, the ancient religious center of Mesopotamia. Archaeologists first excavated the ruins in 1972. Soon thereafter, shifting sand dunes covered the site, preventing further work until digging machines cleared out much of the desert blanket in 1988.

From January through March of this year, Gibson's team examined a layer of the temple dating to between 1600 B.C. and 1200 B.C. At least five building levels lie beneath this layer, probably extending back to about 3000 B.C., he says.

Artifacts found in the temple indicate it was dedicated to Gula, goddess of healing. A lapis lazuli disk contains an inscription to Gula. Six dog figurines— one in bronze, the rest in baked clay— resemble objects associated with Gula worship at other Babylonian sites. The team also unearthed clay figurines of humans, each making a gesture referring



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Dog figurine unearthed at the temple of Gula in the Mesopotamian city of Nippur. Similar figurines at nearby sites are linked to the goddess Gula.

to a physical ailment. For instance, one figure holds his throat while another holds his stomach.

Mesopotamians made regular pilgrimages to Nippur, and some probably sought healing remedies at Gula's temple, Gibson asserts. The prominence of the temple suggests "these people were very worried about their health," he notes.

The team will return to the site next January, hoping to uncover clay tablets describing medical practices at the temple. Medical prescriptions outlining herbal and mineral treatments appear on Babylonian clay texts dating to as early as 2000 B.C., but the ingredients' identities often remain unclear, says Robert D. Biggs of the Oriental Institute, an authority on ancient medicine. Known Babylonian treatments, such as swamp-grass