

Are VDT fields biologically active?

New research shows that pulsed electromagnetic fields generated by flyback transformers in video display terminals (VDTs) exhibit similarities to fields previously reported to cause malformations in chick embryos. The finding is prompting some experts to speculate that these weak fields might be capable of causing biological effects in humans, according to an Oct. 22 report in *VDT NEWS*, a New York City-based newsletter.

Flyback transformers control the scanning of an electron beam across the inside face of a VDT screen, creating its images. There is a long magnetic-field pulse associated with the horizontal tracing of the electron beam across the screen and a brief electric-field pulse generated as the beam snaps back before tracing a new line, according to measurements by Arthur Guy, director of the Bioelectromagnetics Research Laboratory at the University of Washington in Seattle.

Guy's data indicate that the rise time of the transformer's magnetic-field wave (time to peak value) and the amount of current it might induce in the body is similar to those reported for fields affecting chick embryos in experiments by José Delgado and colleagues at Centro Ramon y Cajal Hospital in Madrid, Spain, and published in the May 1982 *BRITISH JOURNAL OF ANATOMY*. The fields involved are extremely weak.

However, Guy points out, when he compared the VDT fields with those used by Delgado, "there were more dissimilarities in the waves than there were similarities"—such as in pulse widths and frequencies. That's important, he told *SCIENCE NEWS*, "because Delgado himself found that even with the same rise time and amplitudes, when just slight changes were made to the waves' shape, he no longer got the same [adverse] effects." So, Guy says, "without knowing the exact mechanism behind Delgado's results, you can't just focus on VDTs; you must focus on the whole class of sources for wave shapes like this." These include switchable power supplies and ignition coils in cars.

Two pesticide workers killed by EDB

Two recent deaths among workers at a storage and distribution facility for agricultural chemicals highlight the extreme toxicity of ethylene dibromide (EDB)—the chemical banned earlier this year from use in most sectors of the agricultural and food industries (SN: 2/11/84, p. 89 and 3/10/84, p. 151). Pathologists were unable to diagnose the precise mechanisms by which the chemical produced its lethal poisoning in these first work-related EDB deaths. The victims did, however, show signs of severe acidosis (depletion of the body's alkali reserve), elevated blood levels of bromide, acute kidney and liver failure, and localized tissue death in skeletal muscle and other organs, according to a report in the Nov. 2 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* by researchers from California's Department of Health Services in Berkeley and the University of California's occupational health center in San Francisco.

The researchers suspect it was exposure through the skin—owing to "grossly inadequate" chemical protection—that ultimately proved fatal. The first victim had been cleaning a pesticide holding tank. When he couldn't dislodge some residue on the inside walls, he climbed into the tank to finish the job. Within five minutes he complained of feeling ill and collapsed. A supervisor called to the scene climbed in to rescue him and also collapsed. Neither man wore protective gear of any kind. Roughly 30 minutes later they were rescued by fire crews wearing fully protective suits and were hospitalized.

Subsequent tests showed that liquid standing in the tank contained between 0.1 and 0.3 percent EDB. Air sampling equipment showed EDB to be the only airborne toxicant present. Since the measured concentrations of EDB in air shouldn't have been high enough, skin exposure is the prime suspect in the search for what initially caused the men to collapse.

Agent Orange accord nears approval . . .

Following 11 days of nationwide hearings with Vietnam veterans and their families on the merits of the out-of-court, class-action settlement on Agent Orange (SN: 5/19/84, p. 314), U.S. District Court Judge Jack Weinstein has given conditional approval to the \$180 million "trust fund" for compensating potential victims of the chemical herbicide's use by the U.S. military. In a 358-page preliminary order, Weinstein noted that the evidence filed with the court—consisting of millions of pages of documents and hundreds of depositions of witnesses—"suggests that the case is without merit" and that the plaintiffs would have gone home penniless had they gone to trial rather than settling out of court. Even so, he found the proposed accord "reasonable" and "to be in the public's as well as the [litigating] parties' interest."

All parties to the original suit maintain a right to sue the U.S. government—the veterans to ask compensation for illness, and the chemical manufacturers to seek compensation for their expenses in setting up the trust fund. Regarding the latter, Weinstein noted that had the original case gone to trial and the manufacturers pleaded a "government contractors defense"—that they should not be held liable owing to sufficient government knowledge of Agent Orange's hazards—the evidence suggests "there is a substantial probability" that the defendants would in fact have been granted exemption from liability.

Weinstein will not offer a final ruling on the settlement until a plan for disbursing the trust fund's money is developed and hearings on it are held—probably sometime late next spring.

. . . as vets' compensation bill passes

Late last month, President Reagan signed into law the Veterans' Dioxin and Radiation Exposure Compensation Standards Act. It provides for compensating servicemen who, within one year of departing from Vietnam, developed either chloracne (skin eruptions caused by chemical exposures) or the liver condition porphyria cutanea tarda. Both have been linked to dioxin exposure and are presumed to be the most likely consequence of serious Agent Orange exposures.

The act also requires that, based on the findings of two scientific advisory panels, the Veterans Administration must issue regulations within two years clarifying whether any other compensable health effects can be linked with exposure to either Agent Orange or radiation during military service.

News updates

- The Nuclear Regulatory Commission's licensing board has reversed an earlier decision (SN: 1/21/84, p. 38) in deciding to permit the fueling and low-power start-up of Commonwealth Edison Company's new Byron 1 nuclear reactor outside of Rockford, Ill. The initial denial had been based on the board's overwhelming lack of confidence in "quality assurance" programs used to guarantee that the plant had been designed and built to operate safely. In a statement issued last month, the licensing board said it was at last satisfied that the plant's owner had taken the steps necessary to assure the quality of the plant.

- Mario Brajuha, a sociology student at State University of New York at Stony Brook, apparently will not have to give up his research notes to a county grand jury investigating the suspected arson of a restaurant he studied (SN: 5/12/84, p. 297), according to Brajuha's attorney, Simon Wynn. Wynn says he's awaiting paperwork confirming the county's decision to drop its demand for the notes. But that's not the end of it; a federal grand jury still wants the notes and has appealed the U.S. Circuit Court ruling that had said Brajuha's notes should get the same immunity to grand jury scrutiny that journalists' notes enjoy. A ruling on the appeal could be handed down at any time.