

# Labor Occupational Health Program MONITOR

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## *In This Issue:*

- REPRODUCTIVE HAZARDS OF VIDEO DISPLAY TERMINALS



## On the Cover:

With millions of video display terminals (VDTs) now in use in workplaces around the world, disturbing reports have begun to emerge that VDT operators may experience more reproductive problems than the general population. In certain places, "clusters" of miscarriages and birth defects have been found among pregnant workers who use VDTs. Many scientists have suggested possible causes ranging from stress to radiation. Other scientists, and many industry representatives, deny that a problem exists. Although there are no conclusive answers yet, several new studies shed light on the question. See the article on page 11.

Also in this issue: Bay Area high school students recently toured local workplaces to investigate health and safety hazards; the story is on page 8.

Cover photo: VDTs at work. (Copyright © by Ken Light.)

# Labor Occupational Health Program MONITOR

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LOHP is a labor education project affiliated with the Center for Labor Research and Education at the Institute of Industrial Relations. We produce a variety of printed and audiovisual materials on occupational health, and conduct workshops, conferences, and training sessions for California workers and unions. A catalog of materials and a brochure which describes training services are available upon request.

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**Staff:** Gene Darling, **Monitor** Editor; Marty Morgenstern, Labor Center Chairman; Robin Baker, LOHP Director; Elaine Askari; Gail Bateson; Marion Gillen; Donna Jarvis; Lucy Martinez; Barbara Plog; Laura Stock; Betty Szudy.

## GERARD F. SCANNELL APPOINTED TO HEAD FEDERAL OSHA

On October 5, 1989, the U.S. Senate confirmed the Bush administration's nomination of Gerard F. Scannell as assistant secretary of labor for occupational safety and health (head of federal OSHA). Scannell was sworn in and assumed his new responsibilities on October 10.

Scannell is the eighth OSHA director since the agency was founded in 1971. He succeeds former director John A. Pendergrass, who resigned in March.

Scannell, 54, is an industrial hygienist. For the last ten years, he has been safety and environmental affairs director at Johnson & Johnson, the major health care products company headquartered in New Brunswick, N.J. For most of the 1970s, he held

positions with federal OSHA, serving as standards director and in other capacities. As standards director, he was responsible for writing many of the original regulations that form the core of OSHA's standards today.

Joseph Kinney, director of the Chicago-based National Safe Workplace Institute, a private advocacy group which pushes for stronger enforcement, said he believes that Scannell will be an activist and will make OSHA a harder-hitting agency than before. Margaret Seminario, the AFL-CIO's health and safety director, said that labor has little experience working with Scannell but that he "seems to be a serious individual who wants to run a serious safety and health program." Scannell has

said that he wants to increase the involvement of unions in OSHA's rulemaking and enforcement activities.

In a recent interview with the *Wall Street Journal*, Scannell suggested that OSHA should issue a motor vehicle safety standard requiring seat belt use and driver training. At Johnson & Johnson, he placed a heavy emphasis on driver safety. Other priorities which have been mentioned by Scannell include increased criminal penalties for violations, expanded efforts to reduce carpal tunnel syndrome, more progress on OSHA's migrant labor camp regulations, and a faster rulemaking process.

*This special double issue of MONITOR (July-December) combines the scheduled Summer and Fall, 1989 issues.*

*Effective January 1, 1990, the subscription price of MONITOR will increase to \$15.00 per year. Subscriptions for multiple copies will continue to be available at \$1.00 per extra copy per year, when ordered with one subscription at the regular \$15.00 price.*

## AROUND LOHP

In addition to publishing *Monitor*, the Labor Occupational Health Program produces many other publications and audiovisual materials. We also offer training sessions and conferences on job safety and health topics for workers, unions, health professionals, and the general public.

Other LOHP services include technical assistance, primarily to labor, and various special educational projects. This section of *Monitor* reports on recent LOHP activities and announces upcoming events.

### *Free Copies Available*

## New LOHP Booklet for Hazardous Waste Workers

The Labor Occupational Health Program has issued a new, 40-page health and safety booklet for workers whose jobs involve contact with hazardous waste or other dangerous chemicals.

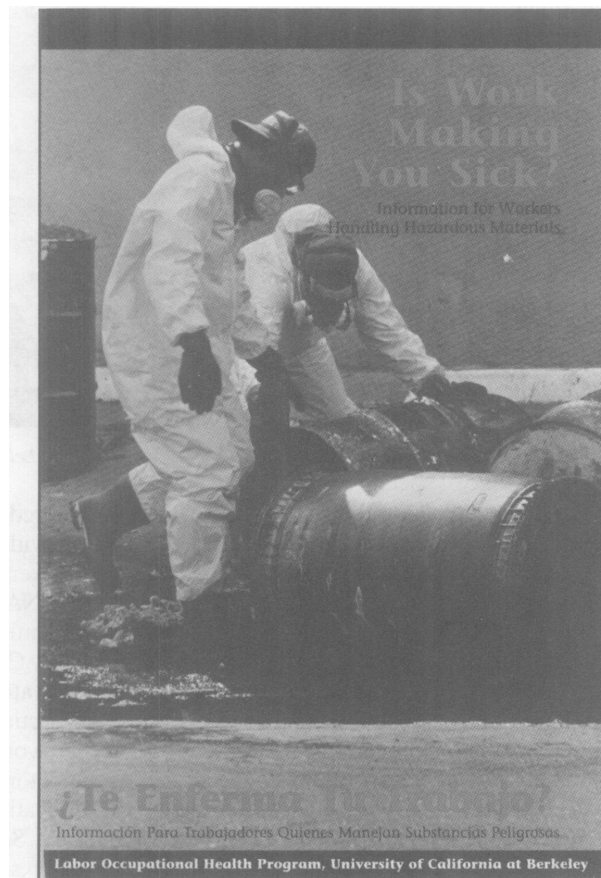
**Is Work Making You Sick? Information for Workers Handling Hazardous Materials**, by Garrett Brown, explains common chemical hazards, how chemicals affect the body, protective measures, and worker rights, especially the "right to know."

Featuring interviews with actual hazardous waste workers, the booklet conveys information in a clear, understandable way to readers with widely different backgrounds and levels of education. The entire text is in both English and Spanish, and there are numerous photos, cartoons, drawings, and charts. Also included is a resource guide to organizations and agencies which provide health information, medical assistance, and legal advice.

The booklet should be useful to workers who handle chemicals in manufacturing as well as in waste treatment, storage, and disposal facilities. It is particularly directed at Black and Latino workers, who make up a significant percentage of the workforce in such occupations and who often face the most dangerous working conditions.

**Is Work Making You Sick?** was developed by LOHP's Hazardous Waste Worker Training Project, which has joined with a number of other organizations throughout California to train several hundred hazardous waste workers during the last two years. Funding for the booklet was provided through a grant from the National Institute of Environmental Health Sciences.

Although the cover price of the booklet is \$2.50, single copies are free to individual workers upon request. Labor, community, and environmental organizations are offered special bulk rate discounts off the cover price when ordering multiple copies. Write to LOHP, 2521 Channing Way, Berkeley, CA 94720 or call (415) 642-5507.



## UCLA OFFERS VIDEO ON HAZARDOUS WASTE WORKER RIGHTS

A 15-minute videotape on job health and safety rights, emphasizing the rights of hazardous waste workers, is now available from LOHP's sister program at the University of California, Los Angeles. UCLA's Labor Occupational Safety and Health Program (LOSH) has produced **It's Your Right To Be Safe**, which is offered in both English and Spanish versions.

The video visits the Stringfellow Acid Pits in Southern California and shows workers decontaminating the area in full body suits. Partly through interviews with the workers themselves, viewers are introduced to a number of key health and safety rights: the right to thorough health and safety training, other aspects of the "right to know," the right to use OSHA,

the right to employer-paid medical exams, and the right to refuse hazardous work.

The video is \$25.00. For more information, or to order a copy, write to LOSH, 1001 Gayley Avenue, 2nd Floor, Los Angeles, CA 90024. Please specify English or Spanish, and also indicate whether you wish VHS or Beta format. Make checks payable to: The Regents of U.C.



## Lela Morris Retires; Marion Gillen Will Head LOHP Continuing Education Program

**Lela D. Morris, R.N., M.P.H.**, who founded LOHP's Continuing Education program and headed it for seven years, retired in August, 1989.

Between 1982 and 1989, Ms. Morris built the Continuing Education program into a major educational resource for Northern California occupational health and safety professionals. The program, conducted by LOHP for the University of California's Northern California Occupational Health Center, now sponsors from twelve to twenty courses for professionals each year, with an annual attendance of several hundred. These professional education services complement LOHP's educational offerings to labor unions and other groups in the community.

Under Ms. Morris' direction, the Continuing Education program gained a nationwide reputation, particularly for its creative courses on timely and relevant topics and for its range of special projects. Among Ms. Morris' many innovations were establishing an annual residential Occupational Safety and Health Summer Institute for professionals and others; involving local community health organizations in occupational health issues; and focusing new attention on the special occupational health problems of minority workers through conferences and publications.

At a retirement testimonial in Berkeley in September, more than 100 people from the LOHP staff, other University departments, and the professional community gathered to thank Ms. Morris for a job well done. She plans an active retirement in which her occupational health interests will continue to play a prominent part. LOHP wishes her well.

Replacing Ms. Morris as LOHP's Continuing Education Coordinator is **Marion Gillen, R.N., M.P.H.**, who joined the staff in August. Ms. Gillen received her M.P.H. degree in Environmental Health Sciences from The Johns Hopkins University School of Hygiene and Public Health, and a B.S.N. degree in Nursing from Rutgers University.

Most recently, Ms. Gillen was Project Director for AIDS Education and Training at the California Nurses Association (CNA). CNA's AIDS "Train the Trainer"



*Lela Morris*



*Marion Gillen*

Program is offered throughout California; health care providers learn strategies for teaching coworkers about AIDS. During her tenure at CNA, Ms. Gillen also represented the organization on a special Cal/OSHA Advisory Committee charged with developing a state standard on worker exposure to infectious materials.

Prior to her work at CNA, Ms. Gillen served as Director of Program Development and Education at Visiting Nurses and Hospice of San Francisco, a multi-program agency serving the elderly, the chronically and terminally ill, and the disabled. Earlier she held various administrative and educational positions with this

and other San Francisco health agencies.

Among Ms. Gillen's particular interests are injury control and the epidemiology of work-related injuries. She says that she hopes to bring her knowledge and interest in these areas to her work at LOHP.

"I am extremely grateful to Lela Morris and other LOHP staff for the outstanding job they have done in creating and building the Continuing Education program," Ms. Gillen says. She adds that she hopes to continue the program in the innovative and active spirit in which it was begun. She welcomes suggestions and ideas regarding future course offerings and other future projects.





## Continuing Education Program Announces Early 1990 Courses

LOHP's Continuing Education program will present four major health and safety courses in early 1990.

A week-long course, **Sampling and Evaluating Airborne Asbestos Dust** (NIOSH Course #582), will be offered January 22-26, 1990, at the Holiday Inn, 1800 Powell Street in Emeryville, California. Primarily designed for professionals who are responsible for collecting and analyzing asbestos samples, the course will familiarize participants with sampling and evaluation equipment and with accepted analytical techniques. It will cover various asbestos fiber counting methods. Students will gain first-hand experience using a microscope for fiber counting and using a scientific calculator for computation of results.

Federal OSHA requires anyone performing asbestos analysis to take this course or an equivalent. Each student is required to bring a microscope and calculator, and there will be a final exam.

Course fee is \$650., which includes materials and a certificate of completion. Continuing Education credit will be offered for industrial hygienists. Rooms will be available at a discount rate at the Holiday Inn. For more information, call LOHP's Continuing Education Coordinator, Marion Gillen, at (415) 642-5507.

**Pesticide Contaminated Hazardous Waste Sites**, a two-day course, will be presented February 22-23, 1990 at the Ala Moana Hotel, 410 Atkinson Drive in Honolulu, Hawaii. This course, part of the federal "Superfund" hazardous waste training program authorized by the U.S. Congress, is

jointly sponsored by LOHP, the Institute of Safety and Systems Management at the University of Southern California, and the National Institute for Occupational Safety and Health (NIOSH).

This is an introductory course directed at entry-level occupational and environmental health professionals who are involved in investigation and/or cleanup activities at waste sites contaminated with pesticides or wood preservatives. Both public and private sector professionals will find the course of value, and will receive training in the principles of toxicology, control measures, and medical surveillance as they relate to pesticides and wood preservatives. This course has previously been offered in California and will be offered in the future in other West-ern states.

Tuition is \$150. for private sector employees and \$125. for employees of public agencies. Continuing Education credit will be available for nurses and industrial hygienists. The course also provides 16 hours credit toward the training requirements of the OSHA Hazardous Waste Operations Standard (1910.120). Rooms will be offered at a discount rate at the Ala Moana Hotel. For more information, call Colleen Phillips at the University of Southern California, (213) 743-6383.

**Comprehensive Review of Industrial Hygiene**, a week-long course, will be held March 19-23, 1990 at the Villa Hotel, 4000 South El Camino Real in San Mateo, California. It is co-sponsored by the Northern California Occupational Health Center (with which LOHP is affiliated) and the American Industrial

Hygiene Association.

This is an advanced course which is specifically designed to assist practicing industrial hygienists in preparing for the American Board of Industrial Hygiene examinations. It provides a comprehensive review of the field, daily practice in test-taking, and advice on study techniques. Abilities in basic mathematics and chemistry are presumed.

Registration is \$700., which includes extensive course materials, refreshments, and lunch for four days. Members of the Northern California Section of the American Industrial Hygiene Association receive a 10% discount. Continuing Education credit will be offered for nurses and industrial hygienists. Rooms at the Villa Hotel are available to course participants at a special reduced rate. For more information, call Marion Gillen at (415) 642-5507.

**Fundamentals of Industrial Hygiene**, another week-long course, will be offered April 16-20, 1990 at the Westin Hotel, San Francisco International Airport. This course is co-sponsored by LOHP and the National Safety Council.

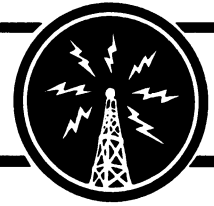
This an introductory overview of the field rather than preparation for the professional exam. The course should be of interest to anyone with a serious interest in industrial hygiene, including plant and personnel managers, supervisors, union representatives, nurses, safety engineers, new industrial hygienists, and those working in risk management and loss control. Course director is LOHP industrial hygienist Barbara Plog, M.P.H., C.I.H., C.S.P. Other instructors include specialists from industry, academia, government, and occupational medicine. Continuing Education credit will be available for nurses.

Registration is \$750., including materials and refreshments. Each participant will receive a copy of the textbook *Fundamentals of Industrial Hygiene*, 3rd edition, edited by Barbara Plog and published by the National Safety Council in 1988.

For information on course content, call Barbara Plog at (415) 642-5507. To register, call the National Safety Council at (415) 341-5649. To reserve low-price accommodations at the Westin Hotel, call (415) 692-3500 and mention the National Safety Council course.

This course will be repeated at the Westin Hotel from June 4-8, 1990.





## *Flaws in TLVs*

### New Studies Question Chemical Standards

Generally accepted standards used by professionals and governments around the world to evaluate chemical hazards in the workplace may not give workers much real protection, according to recent papers by two groups of occupational safety and health researchers.

Both papers focus on the historical origins and the scientific validity of "Threshold Limit Values" (TLVs). TLVs are professional recommendations for the maximum air concentrations of various chemical substances to which workers should be exposed. They have been set for hundreds of chemicals. For several decades, TLVs have been adopted and periodically updated by the prestigious American Conference of Governmental Industrial Hygienists (ACGIH), a private professional organization.

Although TLVs themselves are only recommendations and do not carry the force of law, they are used by much of American industry as part of a "self-regulation" strategy. In addition, they have often been used by federal OSHA as the basis for its "Permissible Exposure Limits," which are legally enforceable. They are also the basis for standard-setting in several other countries.

**Corporate Influence on Threshold Limit Values**, by Barry I. Castleman, Sc.D. and Grace E. Ziem, M.D., Dr.P.H., is a stimulating and well-researched paper which recently appeared in the *American*

*Journal of Industrial Medicine* (13: 531-559, 1988).

The paper critically examines the process used by the ACGIH to set TLVs. As far back as the late 1940s, when the process began, the ACGIH acknowledged that TLVs represented a compromise in which health considerations were balanced against the cost to industry of lowering worker exposure.

The paper's authors demonstrate that industry's own data and studies have played a disproportionate role in the process of setting TLVs; corporate influence in the process has been strong.

For example, corporate representatives have sometimes been given primary responsibility for developing TLVs on proprietary chemicals produced by their own companies. Some TLVs have been based on internal company information and research which were never published in the scientific literature, and thus were never subjected to professional scrutiny and debate. The paper includes case studies illustrating the role which corporate influence has played in setting TLVs for lead and a number of carcinogens.

An upcoming paper in the *American Journal of Industrial Medicine* will present the findings of two University of California researchers on similar questions. Dr. Stanley Roach and Professor Stephen Rappaport of the University's Northern California Occupational Health

Center (with which LOHP is affiliated) use the studies ACGIH cited as documentation for various TLVs and take a fresh look at them to assess how employee health was actually affected. In only one out of five such studies were there no adverse effects on workers who were exposed at the TLV level or below. On the average in all the studies taken together, one worker out of six or seven exposed at or below the TLV showed some kind of adverse effect.

The researchers also demonstrate that, curiously, the TLVs set for various substances are about the same as the levels of contamination in the factories originally studied. They conclude that TLVs are not based only upon considerations of health as is widely presumed, but rather represent values which are believed realistic and attainable at the time. Thus, TLVs represent a compromise between health and practicality (which is to say, between health and economics).

Roach and Rappaport recommend that employers, wherever possible, keep the average exposure of workers below one-tenth of each present TLV. They also urge OSHA to work more closely with the National Institute for Occupational Safety and Health (NIOSH) to develop independent chemical exposure standards.

*—Adapted in part from Northern California Occupational Health Center Newsletter.*

### OSHA Fines Pepperidge Farm \$1.4 Million in Carpal Tunnel Syndrome Case

In a case linked to carpal tunnel syndrome, federal OSHA has charged Pepperidge Farm, Inc. with 389 willful violations of health and safety regulations at its plant in Downingtown, Pennsylvania. The agency is proposing to fine Pepperidge Farm (a subsidiary of Campbell Soup Co.) a total of \$1.4 million.

26 workers at the plant have required surgery for carpal tunnel syndrome. In announcing the penalties against the company, OSHA officials said that the injuries

mostly occurred from repeated motions in packaging cookies on five production lines.

The violations were classified as "willful," OSHA said, because the company ignored recommendations for improved work processes by its own ergonomist, by an insurance loss-control expert, and by plant safety committees. "Management was clearly aware of the need to address ergonomic hazards ... yet chose to ignore its own experts and employees, while more and more workers suffered

crippling injury," said former OSHA head John Pendergrass.

Also included among the 389 violations were 27 lifting hazards which could cause back injuries, and 187 instances of unrecorded or improperly recorded occupational injuries and illnesses.

The company has said it will contest the charges.

*—Excerpted from The Wall Street Journal*

## OSHA Proposes Blood-Borne Disease Standard

In late May, 1989, federal OSHA formally proposed a major new standard to protect U.S. workers against infectious diseases which can be transmitted through contact with blood and other body fluids. The long-awaited rule, sought by unions for several years, is aimed at reducing worker exposure to such diseases as acquired immune deficiency syndrome (AIDS) and hepatitis B.

The standard, which is the first action OSHA has ever taken against biological hazards, will affect an estimated 5.3 million workers in health care, fire and rescue, research, law enforcement, corrections, and other occupations.

The new standard will apply to all occupational exposure to blood or other body fluids such as semen or spinal fluid. The standard incorporates the federal Centers for Disease Control's previously published "universal precautions," which recommend that workers consider *all* blood and body fluids as hazardous and which set out guidelines for handling these substances.

Under the proposed standard, every employer will be required to evaluate workplace tasks and procedures that involve exposure to blood or other potentially infectious materials; to identify the workers performing such tasks; to establish a written infection control plan; and to use methods such as engineering controls and personal protective equipment to reduce the risks. The employer must furnish protective clothing and equipment at no cost to the employee and provide for it to be cleaned and repaired. It will also be the employer's responsibility to keep the worksite in a clean and sanitary condition, including disinfection of environmental and work surfaces.

Infectious wastes must be disposed of in leakproof, labeled containers or bags. Discarded needles and other sharp objects must be placed in puncture-resistant, leakproof labeled containers. There are other requirements which call for labeling containers and freezers where dangerous materials are stored; posting hazard warning signs; providing workers with medical evaluations; and training workers about blood-borne diseases and about the standard itself.

Employers will also be required to offer hepatitis B vaccination free of charge to workers who have occupational exposure to the virus an average of one or more times per month. Free HBV antibody testing must also be made available to such workers.

### UNION REACTION

Two unions which represent large numbers of health care workers called OSHA's action "a significant step forward" but also expressed certain reservations. The American Federation of State, County and Municipal Employees (AFSCME) and the Service Employees International Union (SEIU) criticized the proposal for eliminating OSHA's usual emphasis on engineering controls, rather than personal protective equipment, as the preferable compliance method. The proposal appears to allow either method, without expressing a preference. AFSCME President Gerald McEntee said eliminating the emphasis on engineering controls "removes the incentive for manufacturers to develop equipment, such as self-sheathing needles, that 'engineer' or build in safety guards for workers."

McEntee also suggested that the proposal has a "loophole you could drive a truck through" in that it does not require

worker precautions to be taken when using them would interfere with the delivery of health care or public safety services in particular circumstances. As the proposal is now written, such circumstances are not limited to emergencies; in fact the circumstances are undefined.

### HEARINGS SCHEDULED

The complete text of the proposed standard was published in the *Federal Register* on May 30, 1989. OSHA is now conducting the public comment period which is required prior to formal adoption of any standard, and is soliciting written comments as well as testimony at public hearings to be held around the country. The agency has also requested Office of Management and Budget approval for a survey of hospitals around the country to determine the technological and economic feasibility of the standard.

There have already been public hearings in Washington, D.C., Chicago, Miami, and New York. A San Francisco hearing originally scheduled by OSHA in October, 1989 was postponed due to the Bay Area earthquake and will now be held on January 9, 1990 at the Holiday Inn Union Square, 480 Sutter St.

It is expected that the final standard will be issued in the spring or summer of 1990.



(Photo: LOHP Photo File.)



# High School Seniors Tour Bay Area Workplaces



(Photo: Shelly Weintraub.)

*Editor's Note:* Previous issues of *Monitor* (Spring 1988 and Fall 1988) covered recent efforts by the Labor Occupational Health Program and other groups to introduce labor studies themes, including occupational safety and health, into the curriculum at inner-city high schools in the San Francisco Bay Area. Oakland Technical High School, for example, has now sponsored two annual "Labor Education Weeks." These can serve as a model for other schools to follow. A new booklet describing the Oakland Tech experience will be available soon from the University of California's Center for Labor Research and Education, which participated with LOHP in the labor studies events at the school. Contact LOHP for details.

An economics teacher at another high school in Oakland, Shelly Weintraub of Fremont High, worked with LOHP in the spring of 1989 to introduce her students to job safety and health through visits to a variety of local worksites.

by Shelly Weintraub

*Fremont High School  
Oakland, California*

What could grab the attention of inner-city high school seniors six weeks from graduation? Competing with the Senior Picnic, the Senior Ball, and Grad Night, two teachers at Fremont High School in Oakland decided last spring to ask students to investigate conditions at various worksites in the Bay Area, with a particular focus on health and safety.

Mrs. Nagle (a science teacher) and I knew that the students would soon be entering the world of work with little awareness of the realities of life on jobs of different types. They were even less acquainted with health and safety. We believed that the opportunity to visit worksites and interview people would be a more powerful learning tool than anything a textbook could provide.

Our students were divided into teams of four or five. When told they would be investigating health and safety at workplaces, they groaned. "Can't we just kick back for the last few weeks?" some asked. "We're just about out of here."

We persisted. With the help of local union officials we set up tours of the local fire station, the Highland Hospital clinics and billing department, the Richmond sewage treatment plant, Hills Brothers Coffee, Bay Area Rapid Transit (BART), and Cutter Laboratories (a Berkeley pharmaceutical manufacturer).

Before students went out to tour the

worksites and interview workers, we did some background work in class. We invited speakers to give an overview of the labor movement, and staff from LOHP to give an introduction to job hazards.

The LOHP speakers were particularly effective because they asked students to list hazards on their own after-school jobs. Suddenly students' own jobs and working conditions took on broader significance. Jeff, speaking for most of the class, said "I never thought about health and safety before, but now I'll think more about it when I look for a job."

Some students followed up on the class presentations by visiting the LOHP library to research specific problems such as VDTs. Others studied health hazards even more extensively in their science class.

## STUDENTS REPORT BACK

Teaching is not an exact science, and my students rarely seem to learn what I intend. This project was no exception. Inspired by Karen Silkwood, I think I expected the students to come back with dramatic accounts of terrible hazards.

The students must have picked up on my melodramatic mood. When he returned from his tour, Ernesto, who visited Hills Brothers Coffee, commented: "We went into this place thinking we'd find poison in the coffee, and workers in body casts. . . . We thought we'd see [stereotypical minority workers] doing all the manual labor, while Joe White sat with his snakeskin cowboy boots on top of his desk, counting profits from the drugs he

smuggled in with the coffee beans from Colombia. But unfortunately, this was not the case; we weren't going to uncover a scandal and make headlines after all."

Instead, they found what day-to-day life was like at work. As Steve, who also went to Hills Brothers, wrote: "As we got to the door, I stepped in and was met by a Mike Tyson left jab. But it wasn't a glove, it was a sea of coffee fumes pounding at my nostrils. This turned out to be the first of a number of hazards."

Conditions on the job opened many students' eyes. Bao Uyen, who went to Highland Hospital, wrote: "Since the moment I made up my mind to become a medical doctor, I never considered the risks and hazards within the health care field until I had an interview with a registered nurse, Sally Walker. To our amazement, health care workers are exposed to a variety of health hazards, which range from falling and tripping to back injuries and so on. We saw old sinks . . . that are leaking so badly that towels must be wrapped around them to prevent waste from dripping to the floor."

Some of the students concluded that lack of worker knowledge about hazards, and lack of proper protection, were common problems. For example, Lanita noticed that BART workers didn't wear ear plugs.

While the focus was on health and safety, much of what the students learned went beyond that subject. Marisol and Adrian, visiting the Richmond sewage treatment plant, commented: "As we entered the environment our minds, bodies, and souls were taken over by an

overwhelming odor which resembled that of 10,000 outhouses. [We] thought somehow wastes magically disappeared, but now [we] know that it is a complicated process."

At some of the worksites, students were fascinated with the good pay and benefits of the workers. Other students noted discrimination on the jobs they studied. Students

visiting some workplaces commented on how work was organized so that workers had little control or knowledge of activities outside their own department. At some of the sites, students said they observed the role of unions in protecting workers.

At the end of the year I expected students to thank me for this opportunity to get in touch with the "real world." I hoped

they would admit they had been wrong when they asked to just "kick back." Instead, I got a higher compliment. The students complained that we should have started earlier. They said that this kind of project deserved more attention than it could get at the end of the year, and they wanted to learn more. Next year I'll follow their advice.

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## *New Publications, Films, and Videos*

### *Crossing the Border*

## ***To the Promised Land* Pictures Migrant Workers' Experiences**

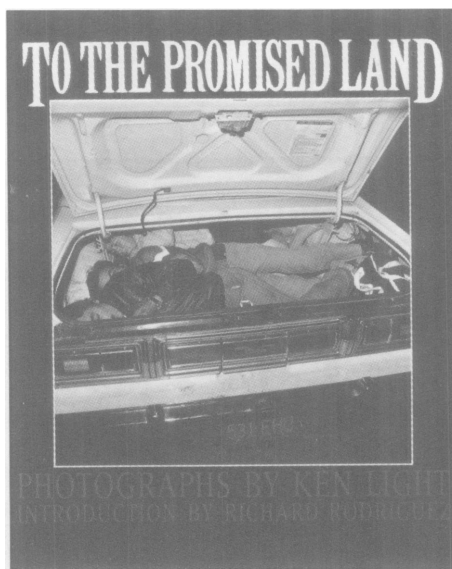
**To the Promised Land** is a new collection of images from noted Northern California documentary photographer Ken Light. The 96-page hardcover book includes 78 black-and-white duotone photos through which Light studies the U.S.- Mexico border and the people who try to cross it.

Published by Aperture Foundation in New York City in association with the California Historical Society, the book depicts the growing migration of Mexican farmworkers from their impoverished homeland to the country they see as the "land of plenty." It also demonstrates that life in the new country usually proves to be far different from the migrants' dreams. Sometimes the journey ends in tragedy, and often it ends in poverty not much different from that which was left behind.

Light, who has been LOHP's photo consultant for many years and whose work often appears in *Monitor*, has previously published several other photo collections, some of which have won major awards. Social concerns have been central to his work throughout his nineteen-year career as a photographer. He has had over fifty museum and gallery shows.

Light is particularly known for photographs of workers and workplaces, and he has traveled throughout the U.S. and in other countries to document the realities of working people's lives. For this new book, Light spent four years photographing "la frontera" and its people. He ranged extensively through rural Mexico and California, delving into the lives of undocumented immigrants—where they come from, their experience at the border, and what awaits them in the U.S.

**To the Promised Land** movingly captures these three stages of migration. It shows the lives left behind in Mexico: families, homes, traditions, landscapes, and hunger. At the border, it shows how the national boundary is both a bridge and



an abyss between two lives and two cultures, past and future, despair and hope. Finally, in the U.S., it shows how the immigrant adjusts to a new life, often a poor life but one of intensive involvement with the artifacts of U.S. culture like tele-

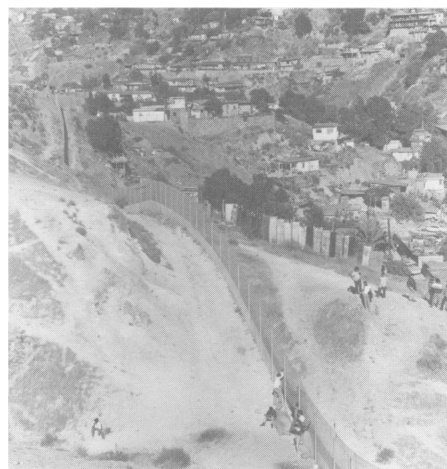
vision, cars, and McDonald's.

In addition to Light's photographs, the book includes an introduction by well-known Hispanic author Richard Rodriguez; a collection of nearly fifty oral histories of undocumented workers gathered by Samuel Orozco, himself once an undocumented immigrant; and an insightful historical essay on border migration by Mary Jo McConahay.

Light says that he understands what drives those who cross the border. "The experience just drew me in. There's no way to describe what it's like being out in the hills in this incredibly deep darkness, witnessing hundreds of people come across despite all the things that can happen to them," he said in a recent interview.

A traveling exhibition and symposium based on the photos and themes in the book has recently been touring the U.S.

**To the Promised Land** is available for \$25.00 in many bookstores, or may be ordered from the publisher: Aperture Foundation, 20 East 23rd St., New York, NY 10010. (ISBN: 0-89381-324-9.)



*Among the photos in To the Promised Land: "La Linea," the U.S.- Mexico border. (Copyright © by Ken Light.)*



### What Should We Do?

# VDTs, Radiation, and Reproductive Risk

by Fran Conrad, CIH

Since 1979, there have been several reports in the U.S. and other countries that "clusters" of miscarriages and birth defects have been found among operators of video display terminals (VDTs).

A "cluster" occurs when reproductive problems are reported in unusual numbers among operators in a particular workplace. For example, in one recent case, 14 miscarriages were reported in a 15-month period among 100 women who used VDTs at the *USA Today* newspaper headquarters in Arlington, Virginia. The National Institute for Occupational Safety and Health (NIOSH) is now studying the Virginia "cluster." (NIOSH will examine possible links to air and drinking water quality as well as to VDTs.)

Such reports have raised troubling questions about reproductive risk, since approximately 36 million VDTs are being used every day in the U.S. alone.

The clusters discovered to date are not large enough to show that the rate of pregnancy problems is really higher than normal; the numbers could have been due to chance. Nor has it been proven that VDTs, rather than some other factor, were the cause of fetal harm in these cases. But reports of clusters are one piece of a growing body of evidence that VDTs may endanger fetuses. Other evidence is being developed through both epidemiological (population) studies and laboratory animal studies.

## POPULATION STUDIES

Several large epidemiological studies have been conducted among VDT operators and other women to examine adverse pregnancy outcomes (miscarriages and birth defects) and to try to identify possible causal factors. At least two of these studies detected an increased rate of pregnancy problems among VDT operators which was high enough to be sure



(Photo copyright © by Ken Light.)

that the problems were not due to chance. One study looked at Polish airline workers, the other at women in California.

The California study was done at the Kaiser Permanente Medical Care Program in Oakland. It has achieved wide media attention. In mid-1988 the Kaiser researchers announced findings that in a group of 1600 pregnant women, administrative and clerical workers who worked more than 20 hours per week on VDTs during the first trimester of pregnancy had a significantly increased rate of miscarriages. (See *Monitor*, Summer, 1988, page 13.)

The Kaiser research is the most convincing population study to date, but it leaves a lot of questions unanswered. The biggest question is whether the VDTs were in fact responsible for the increase in miscarriages. The Kaiser study, although it showed increased miscarriage rates among administrative and clerical VDT users, turned up one group with elevated miscarriages (technical and sales people) who did *not* use VDTs. Another curious finding was that there was no increase in miscarriages among *professional* staff who *did* use VDTs.

These results suggest that whether or not VDTs were causing miscarriages, something else was also involved. Some commentators have suggested that the miscarriages in the clerical group may have been caused by something in the

nature of clerical work other than VDTs, such as stress. That is an interesting possibility, but it should be noted that the number of pregnancies in the professional group (12) was too small to be meaningfully analyzed. By contrast, the clericals in the study had 81 pregnancies. The Kaiser study, therefore, cannot really be used to compare the miscarriage rates of clerical and professional VDT users.

## STRESS, WORKSTATIONS, OR RADIATION?

Three factors have been proposed to explain the possible association between VDT work and problem pregnancies: stress, workstation/work posture problems, and radiation. Any of these three, or any combination of them, could be associated with reproductive abnormalities.

**Stress** might contribute to the reproductive problems of non-VDT workers as well as VDT workers. Many researchers have shown clerical work to be among the most stressful occupations. They point out that for clericals there is often a combination of highly stressful conditions: limited control over one's own work, a heavy workload, and in some cases a lack of career prospects, an unsupportive environment, and little job security. Some studies have

*Fran Conrad, a Certified Industrial Hygienist, is an independent health and safety consultant in Philadelphia, Pennsylvania. She has contributed this article to Monitor.*

*continued on page 12*

## VDTs AND REPRODUCTION

*continued from page 11*

shown stress to be greater on clerical jobs involving VDTs. Stress is suspected to be a factor in problem pregnancies.

**Workstation or work posture problems** include prolonged sitting as well as working with parts of the body in awkward positions. Being sedentary is unhealthy for many body systems, including muscles and circulation. Awkward positions cause muscle stress, which can give rise to aches and even lasting injury. Certain positions, such as leaning forward as may be required to read poor quality documents or poor VDT screens, can put stress on internal organs and possibly on a fetus.

**Radiation**, the third factor, requires more discussion, and will be covered below.

In view of the enormous importance of a potential reproductive problem threatening millions of workers, it is quite remarkable that there has been no definitive, large scale population study on these questions to date. There has never been a study carried out which was designed to examine the physical and social conditions of work closely enough to determine which of them might be associated with adverse reproductive outcomes.

Why such a void in research? In the United States at least, the lack of science reflects a lack of political will. One promising study was designed by scientists at the Mt. Sinai School of Medicine in New York City to look at all the appropriate factors; this study was denied funding by major federal government sources for three years, and has only recently received funds which allow it to get underway. (*See the article on page 14.*)

Another study, currently in progress at the National Institute for Occupational Safety and Health (NIOSH), was stripped by the Office of Management and Budget of its questions on stress and fertility, and so was doomed at the outset. It will be unable to distinguish between possible causal factors when pregnancy problems are found. These developments add up to a deliberate suppression of research by government officials. Someone apparently doesn't want us to learn whether VDTs are really hazardous.

## RADIATION

The VDT emissions which concern some scientists are various forms of *electromagnetic* (EM) radiation. Such radiation always consists of both an *electric* field and a *magnetic* field. It occurs in a whole range of frequencies, from very high frequencies such

as x-rays to much lower frequencies known as VLF (very low frequencies) and ELF (extremely low frequencies). Higher frequencies correspond to higher energy levels.

For most forms of radiation (such as electrical), science has believed that the higher the frequency (higher energy), the greater the potential hazard. Most radiation, when it comes in contact with a person, expends energy by penetrating the body and altering its chemical components; it changes body molecules or heats tissue. When the energy is higher, these effects probably produce more harm.

The highest frequencies (like x-rays) are termed *ionizing* radiation because they can change individual atoms into ions, but even *nonionizing* radiation at relatively high frequencies (like microwaves) can have thermal and chemical effects.

In the past, little attention was paid to the possible hazards of VLF and ELF (low energy) electromagnetic radiation. Until recently, science also believed that the magnetic component of EM radiation (at whatever frequency) poses no threat because it does not cause energy to be absorbed by living systems. There is much recent evidence, however, that VLF and ELF electric and magnetic radiation can indeed have harmful effects, although they may be subtle and are poorly understood.

VDTs emit many types of radiation, including visible light, ultraviolet, radio frequency, VLF, and ELF. It is the VLF and ELF which scientists are now worrying about.

### BRODEUR SERIES IN NEW YORKER DRAWS NEW ATTENTION TO VDTs

A mid-1989 series of articles in the *New Yorker* magazine by noted author Paul Brodeur has focused new public attention on the possible radiation hazards of VDTs. Brodeur's three-part series, "The Hazards of Electromagnetic Radiation," appeared in the June 12, 19, and 26 issues of the magazine. Emphasizing the politics as well as the science of the radiation controversy, the series examined what is known about the health effects of power lines and common appliances as well as VDTs. Most of the material on VDTs appeared in the June 26 issue.

The articles were adapted from Brodeur's forthcoming book, *Currents of Death: Power Lines, Computer Terminals and the Attempt to Cover Up Their Threat to Your Health*, which will be published soon by Simon & Schuster. Brodeur is well known for several previous health and safety books, including *Expendable Americans* and the recent *Outrageous Misconduct*, a study of the asbestos industry.

Since the *New Yorker* articles appeared, Brodeur has been interviewed frequently by TV and newspapers, and the major national media have done a number of feature stories on radiation hazards.

VLF radiation is produced by the flyback transformer, the part of the VDT which sweeps electric pulses from side to side across the screen to create the image. ELF radiation is produced by the vertical deflection system, a set of components which move the pulses from top to bottom of the screen.

Both the flyback transformer (VLF emissions) and the vertical deflection system (ELF emissions) produce pulsed fields of two types: electric and magnetic. It is important to bear in mind that *both* electric and magnetic fields are present, because their hazards are different. Also, the ways of shielding against them are very different, as we shall see. If we are to demand controls on radiation, we need to be clear what controls protect against which type of radiation.

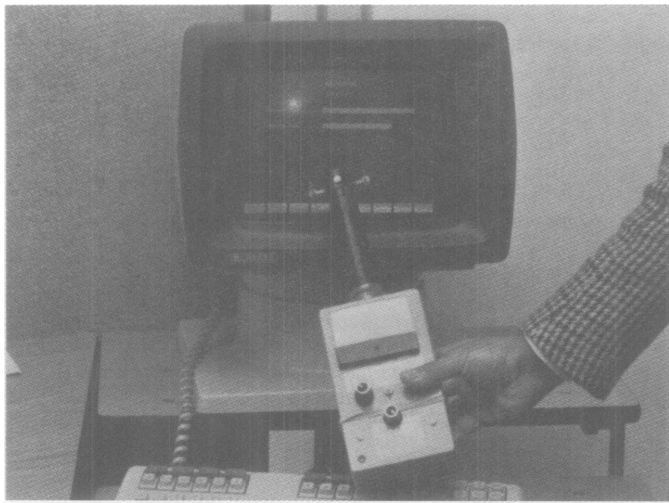
## ANIMAL STUDIES AND OTHER RESEARCH

New research has begun to look at the previously neglected *magnetic* field.

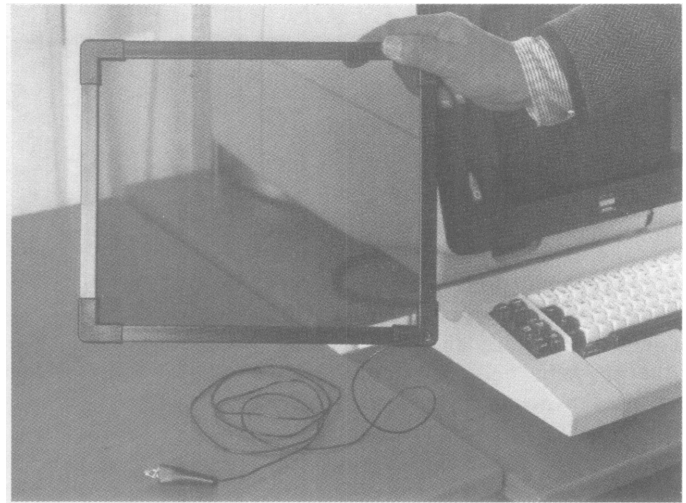
Several recent studies have demonstrated that chicken and mouse fetuses can be harmed by very weak VLF and ELF pulsed magnetic fields. For example, the so-called "Henhouse" project, an international effort involving six laboratories in different countries, studied chicken eggs which were exposed to an ELF pulsed magnetic field for the first 48 hours of incubation. These researchers found a statistically significant increase in abnormalities among the exposed embryos when the data of all six labs was pooled. Also, Dr. Hakon Frölen of the Swedish University of Agricultural Sciences in Uppsala has found that pulsed magnetic fields can cause significant increases in fetal loss among pregnant mice. In neither of these studies, however, were the magnetic fields used identical to those produced by VDTs. (*See the article on page 15.*)

Lots of questions are still unanswered. First, what biological mechanism explains the fetal damage? Magnetic fields do not cause energy to be absorbed as electrical ones do, so they must cause harm by some different mechanism. Secondly, whatever the mechanism of harm in mice and chickens, could such fields also harm human fetuses?

Another line of evidence arises from several studies which suggest that children exposed to magnetic fields from high voltage power lines have increased chances of getting leukemia. While the field strengths near power lines can be much greater than those from VDTs, the leukemia effect is important as an indicator that magnetic fields can cause biological harm. (*Some of these power line studies are described in the recent New Yorker magazine series by Paul Brodeur. See the article on this page.*)



Electric and magnetic fields can be measured by several different types of instruments. This electromagnetic field meter can measure the two types of fields separately. (Photo: Ontario Public Service Employees Union.)



Glare screens fit over the VDT monitor. They may be made with a variety of materials, from mesh to coated glass. Those with a grounding wire can be effective against VLF / ELF electric fields.

Given the evidence that the radiation risk is real, and given our relative lack of scientific knowledge about what is going on, the only sensible course of action is to protect VDT operators by reducing radiation as much as possible.

## CAN VDT RADIATION BE REDUCED?

Radiation can be reduced either by shielding it or by developing technology which doesn't produce it. It is easy to shield the VDT's *electric* field completely. The outer case of the VDT can be lined with copper foil which is attached to a ground by a wire. Also, a filter can be placed over the screen to absorb the energy and drain it off to a ground; such filters are readily available.

But there is no simple way to shield the *magnetic* field. It can penetrate materials like copper foil and screen filters, even though these are effective in absorbing the electric field.

Since recent evidence has implicated the magnetic field, for which no method of shielding is available, a better solution than shielding would be to alter the electronics of the VDT so that much less radiation is produced. At least one manufacturer, JVC, has done just that for its terminals sold in Sweden. (A large user of VDTs there introduced a purchasing specification requiring VDTs with very low magnetic emissions.)

Other manufacturers, notably IBM, are also experimenting with low emissions technology.

There are VDT technologies which produce low emissions, such as liquid crystal displays (LCDs). At present, LCDs are only widely available in laptop com-

puters. They have been little used in other models because of the difficulty in getting a clear image and other problems.

One American manufacturer (Safe Computing Co., Inc., in Needham, Massachusetts) has developed an LCD screen for use with full-size computers. It has no detectable electric or magnetic emissions.

## INDUSTRY'S RESPONSE

Manufacturers have not been racing to shield their products or to come up with low radiation technologies. They prefer to deny there is any need to do so. If you talk to representatives of VDT manufacturers, most will tell you there is no evidence of any radiation hazard.

VDT activists should study and critically evaluate the arguments industry uses, so as to be prepared to rebut them.

Much literature from industry purporting to summarize the data conveniently omits mention of all studies which showed a hazard. It emphasizes those studies which found VDT radiation to have no effect. This continues to occur despite a rather obvious scientific principle: when you are dealing with a hazard, especially a subtle and poorly understood one, you should always give more weight to positive than to negative studies. Negative studies may reflect merely a failure to detect a problem, while positive ones raise a red flag which should not be ignored unless and until those studies are proven wrong.

Another industry tactic is to lift quotations out of context from scientists and scientific organizations which seem to indicate that there is no evidence of hazard. But at least one organization often quoted, the World Health Organization, has

warned VDT users to "keep their distance" from the machines. Anyone can dig around and find a quotation to support just about anything. That is no substitute for a comprehensive evaluation of the evidence.

Industry also claims that common household appliances such as televisions and electric blankets emit higher levels of VLF radiation than VDTs. This argument is quite misleading for three reasons: (1) there is no certainty that the appliances mentioned *are* safe; (2) people are unlikely to spend all day one to two feet away from an appliance, perhaps with the exception of electric blankets, but they often spend all day that close to a VDT; and (3) VDTs emit pulsed radiation while most household appliances except TVs emit non-pulsed radiation, and pulsed emissions are thought by many researchers to be more harmful.

Manufacturers are fond of pointing out that emissions measurements have never found radiation from VDTs at a level anywhere near any existing regulatory standard. What they fail to point out is that *there are no relevant standards*. In the ELF range, there are no standards at all. In the VLF range, the only U.S. guideline (not a legally binding standard) for electric and magnetic fields is designed to prevent shocks and burns, which are not a major issue with VDTs. This guideline is the threshold limit value (TLV) for radio frequency/ microwave radiation issued by a non-regulatory body, the American Conference of Governmental Industrial Hygienists (ACGIH). The documentation issued with the guideline in fact states that "Needless exposure...[to VLF]... should be avoided given the current state of knowl-

*continued on page 14*



## VDTs AND REPRODUCTION

continued from page 13

edge on human effects, particularly non-thermal effects."

Manufacturers may claim that they *do* partially shield VDTs. Usually they do so because of Federal Communications Commission regulations limiting interference with other electronic devices. This shielding affects only the electric field, not the magnetic field. It is only partly effective even against the electric field. FCC regulations are not health regulations. They are not set on that basis and they are not intended to protect operators. In any event they involve higher frequencies than the VLF and ELF frequencies with which we are concerned.

One might think that manufacturers would try to adopt effective shielding (at least against the electric field, where shielding can be effective). One might think they would do more to develop low emissions technology. Louis Slesin, editor of *VDT News*, suggests that they make little effort in these areas because to do so would be an admission of possible hazard which might open them to liability.

Instead, the industry typically denies all radiation hazard, ignores the evidence, and avoids taking any protective measures.

### WHAT SHOULD WORKERS DO?

There are some strategies which unions, activist groups, and others concerned about health and safety can pursue to try to make VDT workplaces safe with respect to radiation and reproductive health.

#### National public campaigns.

- **Improve technology.** Put pressure on manufacturers to shield VDT electric fields completely, so that emissions are undetectable. Encourage them to develop other technologies with low electric and magnetic emissions, and to sell these models in the U.S.

- **Encourage research.** Push the government's scientific agencies, like the National Institute for Occupational Safety and Health (NIOSH) and the National Institutes of Health (NIH), to fund appropriate research.

#### Workplace campaigns.

- **Purchase the best technology.** Pres-

### VDTs and Reproduction Emphasized

## Mt. Sinai Will Study Office Worker Health

In September, 1989, the Mt. Sinai School of Medicine in New York City launched a \$2 million national study of women office workers' jobs and health.

Reproductive health will be a special focus of the study. Among other questions, the Mt. Sinai team will evaluate the risks of working on video display terminals (VDTs) during early pregnancy. The project promises to be the most ambitious and comprehensive epidemiological study of VDTs and reproduction to date.

Musculoskeletal and vision problems possibly related to VDTs will be addressed as well.

Also examined will be potential risks to women's health from other aspects of office work, not just VDTs. The study will look at workplace environment, ergonomics, and stress in addition to lifestyle factors such as cigarette smoking, alcohol consumption, and caffeine intake.

The four-year project is funded by the National Institute of Child Health and Human Development (NICHD), a branch of the National Institutes of Health. Principal investigator is Dr. Michele Marcus.

Collaborating with her will be Dr. Philip Landrigan, the head of Mt. Sinai's Division of Environmental and Occupational Medicine, and Dr. Irving Selikoff, the past head of the division. Selikoff has planned a major national VDT study since 1985, but funding has been controversial.

Researchers will examine the lifestyles, work activities, and health of 8,000 women office workers in four cities nationwide—New York, Boston, Cleveland, and a California city to be determined. The women will be asked to complete questionnaires, and approximately 10% of them will then be monitored intensively for a one-year period.

The study will include both union and non-union workplaces. The Service Employees International Union and its affiliate "9 to 5" (the National Association of Working Women) will help the Mt. Sinai researchers identify possible workplaces to participate in the project.

AT&T Bell Labs will assist Mt. Sinai in measuring radiation from VDTs.

sure employers to adopt purchasing specifications which require terminals with the lowest emission levels available. Published studies, and data collected by the U.S. Food and Drug Administration, indicate that electric fields are usually below 10 and often below 5 volts per meter at 30 centimeters from any surface of the machine. These levels could be used as maxima for purchasing specifications. Data is too limited on magnetic fields to make a recommendation.

- **Force new technology.** A more protective option would be to require in purchasing specs that electric and magnetic radiation be non-detectable. This option would force new technology or wider distribution of newly developed technology. (This is a demand which can be made either on employers or on regulatory bodies, including OSHA, the FDA, and/or state and local health departments.)

- **Use filters for radiation and glare control.** Demand filters which eliminate the VLF/ELF electric field as well as glare. These are usually the more expensive type of glare-reducing screen filters; they have a wire to ground. The best ones are coated glass filters; some sell for about \$100. It would be reasonable to demand grounded filters for all VDTs where monitoring indicates an electric field of greater than 5 volts per meter at the operator position. Remember, though, that these filters do not eliminate the magnetic field. This demand is therefore a

half-measure. (Note also that for glare reduction, the best remedy is correct lighting. Glare filters should be considered a remedy of last resort for glare problems.)

### OTHER WORKPLACE IMPROVEMENTS

Workers need to push to make the VDT workplace *safe*, not just safe with respect to reproduction. Poor workstation and job design have been clearly associated with non-reproductive health problems like visual, musculoskeletal, and psychological disorders. Workers should therefore make additional demands for better conditions involving ergonomics, lighting, and stress.

As we have seen, solving workstation and stress problems may also eliminate some possible reproductive dangers.

Demands should include:

- Adequate and glare-free lighting.

- Appropriately designed workstations with ergonomically correct desks, chairs, terminals, and other equipment (including document holders, palm or wrist rests, and footrests).

- Breaks of at least 15 minutes after each two hours of consecutive VDT work, plus short discretionary breaks as needed.

- Job task variety such that no job requires more than four hours per day of VDT work.

- Pregnancy transfers without loss of pay, seniority, or benefits. Recall, though, that the earliest weeks of pregnancy, when it may be confidential or unconfirmed, could be the most vulnerable to radiation. Thus transfers have limited potential effectiveness with respect to radiation. Of course, pregnancy transfers could still be valuable in eliminating the effects of stress or poor ergonomic design.

**Later In This Issue:** *The Video Views* section beginning on page 16 features efforts around the U.S. to win protection for VDT operators.

**In the Next Issue:** *More on VDTs and reproductive hazards, emphasizing the strategies workers, unions, and others are using to deal with these concerns. The next Monitor will also feature a bibliography on the reproductive hazards of VDTs.*



(Photo: LOHP Photo File.)

### *Chickens and Mice*

## Embryo Studies May Link Magnetic Fields to Reproductive Problems

There have been periodic reports over the last decade that "clusters" of pregnancy problems sometimes occur among video display terminal operators in certain workplaces. (See the accompanying article.)

In response to such "cluster" reports, scientific investigators around the world are pursuing several different types of research which may shed light on the VDT/pregnancy question. Epidemiological (population) studies have been conducted in the U.S. and elsewhere, and the investigation has now moved into the laboratory. Scientists in several countries are attempting to determine the mechanism by which VDTs might affect human reproduction, and specifically to find possible links between various kinds of VDT emissions and reproductive system damage.

### HENHOUSE PROJECT

Many important studies have focused on pulsed magnetic fields (PMFs), since VDTs produce certain types of weak PMFs. In mid-1988, an international team of researchers presented a paper at a meeting of the Bioelectromagnetics Society, strongly suggesting that weak PMFs can interfere with the development of chicken embryos. The findings were the product of the so-called "Henhouse" project, a joint effort of six laboratories in the U.S., Canada, Spain, and Sweden.

The "Henhouse" project, supported in part by the U.S. Office of Naval Research and the U.S. Environmental Protection Agency, grew out of earlier work by Dr. Jocelyne Leal of Madrid, Spain. Each of the six labs used identical procedures and equip-

ment, but different types of chicken eggs. The eggs were exposed to a low-level PMF for the first 48 hours of incubation. Five of the labs found increases in the number of abnormalities among the exposed embryos beyond what would be expected. The increases were statistically significant in only two labs, but the combined data from all six labs also showed a statistically significant increase.

According to John Monahan of the U.S. Food and Drug Administration, one of the "Henhouse" researchers, "The effect is real. It is produced by a low-level magnetic field, but we don't yet know what the parameters of the field are."

Although the study results show that magnetic fields at very low levels can have biological effects, they cannot be interpreted to mean that a link between VDTs and human reproduction has been established. The type of magnetic field used had a different waveform from fields emitted by VDTs, and chicken embryos are very different from the human fetus.

In related studies reported later in 1988, two members of the "Henhouse" project, Leal and Dr. Alexander Martin of the University of Western Ontario in Canada, said they had found that chicken eggs are most sensitive to PMFs very early in their development. Both discovered evidence that the effect seems to occur very early during the 48-hour period used in the original "Henhouse" research.

### MONTREAL CONFERENCE

Results of several other PMF studies were presented at a major conference held in Montreal in

September, 1989. At the Second International Scientific Conference on Work With Display Units, Dr. Hakon Frölen of the Swedish University of Agricultural Sciences in Uppsala presented findings from his research on pregnant mice. He found that PMFs can cause significant increases in fetal loss—the rates doubled compared to unexposed mice. Fetuses proved most sensitive to PMFs when exposed early in pregnancy. In this study, the magnetic fields used were more like those emitted by VDTs than in the "Henhouse" research, although Frölen's fields were somewhat stronger than those typically found near VDTs.

Frölen said he is convinced that "PMFs can influence a biological system."

Another speaker at the Montreal conference, Kjell Hansson Mild of the Swedish National Institute of Occupational Health, gave an overview of recent research on the embryonic development of chickens and mice. Mild also described studies in which human volunteers exposed to weak magnetic fields have experienced reduced heart rates. Other investigators, he said, have linked magnetic fields to increased cases of cancer.

"Something is going on here," Mild told the conference. He added that scientists do not yet know what magnetic field levels are safe.

In contrast, the conference was told of another study, sponsored by IBM and Ontario Hydro, which failed to find excess reproductive abnormalities or fetal deaths in pregnant mice exposed to PMFs. Preliminary results were reported by Murray Walsh, the study coordinator.

# VIDEO VIEWS

*Monitor* now features this regular section devoted to news and information about automation on the job. It replaces the formerly separate newsletter, *Video Views*, which was published until 1987 by LOHP and the VDT Coalition. The new section, to appear in each issue, will report

on the health and safety implications of video display terminals and other new technology, union responses, regulatory issues, and legislation. Former *Video Views* subscribers are invited to subscribe to *Monitor* for our future ongoing coverage of the "high tech" workplace.

## *Nationwide Legislative Roundup*

### Activists Push for VDT Laws Around the U.S.

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*Adapted in part from Campaign Update, published by "9 to 5," National Association of Working Women.*

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The law on video display terminals passed in Suffolk County, N.Y. last year gave a boost to VDT legislative efforts throughout the U.S.

Although the Suffolk County law was reversed in December, 1989 (*see page 17*), a number of new bills based on the language and ideas of the Suffolk County model have been introduced in various places. Laws were proposed on the local, state, and federal levels. Some bills have run into difficulty and many are still pending, but one important victory was the passage of a comprehensive new VDT law in New York City in late 1989; it is described later in this article.

Other new bills introduced around the country dealt with closely related questions, especially electronic monitoring in the workplace. Following is a progress report on some of the major bills.

**California.** AB 955 was introduced in the state legislature in 1989 by Assembly member Tom Hayden (D.- Santa Monica.) It would require that new VDTs and associated furniture used in any California workplace be in compliance with the recently published American National Standards Institute ergonomic guidelines. ANSI's guidelines call for adjustable chairs and tables, provision of accessories such as document holders and footrests, and appropriate lighting levels as well as glare control. The bill would also require the state to convene a committee to develop guidelines covering the use of VDTs by pregnant women.

AB 955 passed the Assembly in June, 1989, thus becoming the first VDT bill to pass one house of the legislature. (Several bills failed in previous years.) In the Senate, however, the Appropriations Committee requested that the bill be held over for reconsideration in 1990. According to Judy Corbett, an aide to Hayden, "The only chance we have of getting it out of this committee next year is if there is an enormous show of support, since the opposition was out in great force."

Unions and the VDT Coalition have also begun a campaign to lobby California city and county governments to pass VDT regulations. (*See the story on page 18.*)

**Maine.** The state legislature passed HP 481 in 1989. The bill, as passed, requires employers with 25 or more VDTs to provide education and training to VDT users who work at terminals more than four hours a day. HP 481 was weakened considerably as it proceeded through the legislature. Originally it would have set guidelines for ergonomic VDT workstations and mandated eye exams for all VDT operators. It would also have required employers to provide operators with a manual containing information on VDT health hazards and employee rights, to be updated annually by the state Department of Labor.

**Massachusetts.** One Massachusetts bill, H 4196, is called "An Act to Prevent Potential Abuses of Electronic Monitoring in the Workplace." This bill, sponsored by the Massachusetts Coalition on New Office

Technology, was tabled in 1988 but was refiled in the state legislature in 1989. The Coalition has recently issued a comprehensive report on electronic monitoring as part of its campaign to pass the bill. (*See the story on page 16.*)

**Minnesota.** Identical bills, HB 256 and SB 76, were introduced in the state legislature; both were based on the Massachusetts monitoring bill with some small additions. These bills missed getting out of committee in the spring of 1989, but the groups supporting them have pledged to continue their efforts.

**New Jersey.** In November, 1989, the state's Department of Health issued "advisory" VDT guidelines which cover employees working for state, county, and local governments as well as school districts. It is expected that these rules may soon be made mandatory for all public workplaces. The guidelines encompass lighting, design of equipment and furniture, eye exams, and training. They call for 15-minute breaks every two hours for those working at a VDT. Dr. Molly Coye, the State Health Commissioner, said that radiation is not covered at present because the evidence is relatively contradictory, but that it could be included after more research is done.

**New York City.** The City Council passed a VDT bill, Intro. No. 1088, in late 1989. The bill, modeled after the Suffolk



County law, covers 12,000 city workers who use VDTs. It is considered the toughest VDT law in the nation, and is the first in a major city. It requires an ergonomic work environment, eye exams, rest breaks or alternative work breaks, VDT safety training, and pregnancy transfer rights. Now that the bill has passed, the group which sponsored it (the New York City VDT Coalition) plans to work for its extension to the private sector.

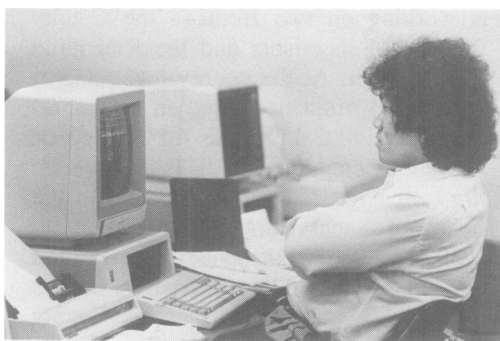
**Rhode Island.** H 6018, introduced in the state legislature in 1989, would have required strict guidelines on electronic

monitoring similar to those proposed in Massachusetts. It was actively supported by the Rhode Island Coalition for Occupational Safety and Health (RICOSH) and a local group called the Office Technology Education Committee, a consortium of local unions and community organizations. The bill failed to pass out of committee.

**Washington.** SB 6025 died in the state legislature in 1989 shortly after it was introduced. This was a comprehensive bill designed to protect the health and safety of workers in a number of different industries, including workers using VDTs.

Another bill, HB 2147, would have required the state Department of Labor and Industries to set VDT standards, but did not make it out of committee.

**Federal government.** HB 2168, a bill on electronic monitoring similar to the Massachusetts bill, was filed in the U.S. House of Representatives in May, 1989. Sponsors were Representatives William Clay (D.-Mo.), Don Edwards (D.-Calif.), Pat Williams (D.-Mt.), and Ben Gilman (R.- N.Y.). Senator Paul Simon (D.-Ill.) was expected to file a Senate version.



(Photo copyright © by Ken Light.)

## SUFFOLK COUNTY VDT LAW OVERTURNED

On December 27, 1989, the first U.S. VDT law covering both the public sector and private industry was overturned by a New York judge. The law, passed by the Suffolk County, N.Y. legislature in 1988, mandated that employers provide VDT users with eye exams, rest breaks, ergonomically designed terminals and workstations, improved lighting, and VDT safety training.

Rest break and training requirements of the law had taken effect in January, 1989, and equipment purchasing guide-

lines were originally scheduled to become effective in January, 1990.

The decision came in the state Supreme Court in Hauppauge, N.Y. (a state district court). Judge John Copertino agreed with arguments in a lawsuit filed by the Long Island Association (a business coalition), ruling that Suffolk County lacked the legal authority to regulate workplace health and safety. Although Copertino did not dispute the existence of VDT health risks, he ruled that such matters are under the exclusive jurisdiction of the state and federal

governments. The law's proponents argued that the County is entitled to act in the absence of any state or federal law covering VDTs.

As a result of the ruling, employers in Suffolk County are no longer required to comply with any of the law's provisions, including those already implemented.

The County has not yet made a decision on a possible appeal, but a coalition of unions and community organizations are pressuring the County to challenge the ruling.

## Coalition's Campaign for Local VDT Regulations Moves Ahead

by Carol Thornton  
and Larry Hendel

The VDT Coalition has been moving forward with its campaign to persuade city and county governments in Northern California to adopt ordinances regulating video display terminals in the workplace.

The campaign has set up subcommittees in four Bay Area counties (San Mateo, San Francisco, Alameda, and Contra Costa). These groups are working hard, lobbying local public officials and mobilizing VDT users.

In San Mateo County, Sandy Strehlou of Service Employees International Union (SEIU) Local 715, chair of the county subcommittee, has been meeting with management in county offices to get agreement on health and safety guidelines for county VDT workers. The San Mateo subcommittee has also decided to mount a media campaign to alert VDT users in both public and private sectors about the potential hazards of prolonged VDT use and ways to mitigate them.

Both in San Francisco and in Alameda County, lobbying efforts are well underway to introduce and build support for model VDT health and safety ordinances. There have been meetings with supportive

elected officials; lists of injured VDT workers who are available to testify at hearings have been compiled; and there has been an effort to promote VDT awareness at city and county worksites. Among participants on the subcommittees in these counties are representatives of SEIU Locals 616 and 790, American Federation of Government Employees, Communications Workers of America, Newspaper Guild, Coalition of Labor Union Women, and San Francisco Community Health Coalition.

The Contra Costa County subcommittee is working on two fronts—the County Board of Supervisors and the Richmond City Council. At the county level, a proposed VDT ordinance based on the recommendations of Cal/OSHA's Ad Hoc Expert Advisory Committee on VDTs (*see related story on page 19*) was introduced in the Board of Supervisors on December 12, 1989. The Board postponed a decision on the ordinance pending a report from its legal counsel on whether or not the County has authority to pass such a law. In the meantime it directed a task force, made up of local business, county, and labor representatives, to review current VDT knowledge and develop voluntary VDT guidelines. The Board also indicated its interest in similar guidelines for County employ-

ees.

In Richmond, City Council member Rosemary Corbin introduced a proposed ordinance in June, 1989 which would cover VDTs in both municipal and private sector workplaces. A City Council "study session" will be scheduled on the issue. Richmond city workers, represented by SEIU Local 790, are concerned about the city's slow pace in implementing VDT protections negotiated in last year's contract, and are working to help insure the ordinance's passage.

The effect on this campaign of the recent court decision overturning the Suffolk County, N.Y. VDT law remains to be seen. However, according to local VDT activists, the success of all these efforts will be measured not only by legislation finally passed, but also by the degree to which local unions and workers become mobilized to take up VDT questions themselves.

*Carol Thornton is VDT Project Organizer for the Service Employees International Union (SEIU) in San Francisco. Larry Hendel, who contributed the report on Richmond, is a member of SEIU Local 790.*

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### Speak Out!

## VDT Coalition Trains Members in Public Speaking

by Jolie Pearl

LOHP Intern

Public speaking! The very thought of it is often enough to send the bravest of us to the nearest exit. Intimidated by the challenge of trying to persuade an antagonistic or uninterested audience of something important, most people are quick to find a good excuse for not speaking in public at all. But learning how to speak in public, in front of just such an audience and in a persuasive and determined way, is often a necessity for trade unionists and for anyone who hopes to bring about change.

Learning effective public speaking techniques was the aim of a recent class sponsored by California's VDT Coalition. The Coalition hoped that members who

were effective public speakers could play a key role in its ongoing campaign to convince local governments in California to adopt new regulations protecting VDT operators. (*See the article above.*)

The speakers' training, called **Speak Out! For VDT Health and Safety**, was held on July 8, 1989 at the Institute of Industrial Relations on the campus of the University of California at Berkeley. Most of those attending were members of the VDT Coalition from various local unions, including Communications Workers of America (CWA) Local 9410; Service Employees International Union (SEIU) Locals 616, 715, and 790; Northern California Newspaper Guild Local 52; American Federation of Government Employees (AFGE) Local 3172; and American Federation of State, County and Muni-

cipal Employees (AFSCME) Locals 512 and 2700. All these unions represent clerical workers who use VDTs on their jobs.

Jolie Pearl and Laura Stock of LOHP gave participants an overview of basic public speaking techniques, as well as instruction on how to prepare a talk specifically on VDTs. They also made suggestions on how to answer adversarial arguments. Ed Herzog of SEIU Local 790 shared some tips on how to deal with the media.

The most challenging part of the day came when the class divided into small groups, and each prepared an actual speech on VDTs. Each group was assigned to prepare its remarks for a different target audience, ranging from a city council to the state legislature to the media at a press conference.

The session also included a review of the latest VDT health and safety issues and concerns. Galen Ellis of SEIU gave an update on the progress of the VDT Local Ordinance Campaign.

Participants were enthusiastic about the training. Many of those who attended, as well as others from their unions, are now being called upon to testify before city councils and the state legislature, and to speak to the media, about VDT health and safety issues. The week after the training session, several participants went to tes-

tify before the Industrial Relations Committee of the state Senate in support of Assemblyman Tom Hayden's 1989 VDT bill, AB 955. Perhaps because of the effectiveness of these newly trained public speakers, the bill passed the committee. (For more on AB 955, see page 16.)

For information on future VDT Coalition speakers' training sessions, contact Laura Stock at LOHP, (415) 642-5507; or call Carol Thornton or Galen Ellis at SEIU Local 790, (415) 465-0120.



Union members pay close attention at the VDT Coalition's speakers' training. (Photo: Ed Herzog.)

## *News From the World of New Technology and VDTs*

### **Cal/OSHA Board Refuses to Issue VDT Standard**

**by Barbara Plog**

*LOHP Industrial Hygienist*

*Member, Cal/OSHA Ad Hoc Advisory Committee on VDTs*

The Cal/OSHA Standards Board ignored the advice of the agency's own expert advisory committee when it voted 4-1 on June 22, 1989 in San Francisco against adopting state health and safety standards to regulate video display terminals (VDTs). (The one vote favoring VDT standards was cast by Standards Board member Gerald O'Hara, a Teamsters Union representative.)

Twelve of the sixteen members of Cal/OSHA's Ad Hoc Expert Advisory Committee on VDTs recommended that the Standards Board adopt VDT standards covering vision, musculoskeletal concerns, computer monitoring, and stress. (See *Monitor*, Spring 1989, page 12.)

But Cal/OSHA staff urged the Standards Board to reject the Advisory Committee's recommendations, and the Board did.

On June 20, 1989, just before the Standards Board hearing, members of the Ad Hoc Expert Advisory Committee majority viewpoint gathered at a news conference

in San Francisco to denounce a report issued by R.W. Stranberg, chief of Cal/OSHA, which recommended that no California VDT standards be adopted. Stranberg's arguments and conclusions coincided with those of employer and computer manufacturer representatives on the Advisory Committee, who made up its minority viewpoint.

Speakers at the press conference included Becky Hogue, a directory assistance operator for Pacific Bell and a member of Communications Workers Local 9410. Hogue, an injured VDT worker, strongly urged adoption of a standard. She said tendonitis in her right arm caused her to be off work for months, but the company later forced her to return and use only her left hand for keying. She now wears bandages and braces on both arms and wrists. Pac Bell, she charged, is unwilling to admit that her diagnosed illness is work-related.

Dr. James Cone, chief of the Occupational Health Clinic at San Francisco General Hospital, also supported the call for a standard. Dr. Cone told the press conference that the cumulative trauma and musculoskeletal injuries experienced by some VDT workers can become permanently disabling conditions.

In its own recommendations to the Standards Board, Cal/OSHA contended that because eye damage and musculoskeletal injuries are not unique to VDT work, a remedy which focuses exclusively on VDTs (such as a standard) is not appropriate.

Cal/OSHA's report conceded that "the evidence and discussions [of the Advisory Committee] did demonstrate that there are features of VDT work that may be associated with stress." However, the report added that "stress associated with VDT work or any other work is not necessarily detrimental."

Supporters of a standard who testified on June 22 at the Standards Board hearing included Advisory Committee members Kathleen Kinnick, Director of Women's Activities for the California Labor Federation, AFL-CIO; Laura Stock, Associate Director of LOHP; and Barbara Plog, LOHP's industrial hygienist. Several others representing workers' interests also testified. There was no opposing testimony, but the Standards Board accepted Cal/OSHA's verdict that no standard was required.

*—Adapted in part from California AFL-CIO News*

## Cal/OSHA Orders Newspaper to Correct VDT Hazards

In the first action of its kind in California, Cal/OSHA, the state's safety and health enforcement agency, has ordered the *Fresno Bee* newspaper to improve working conditions for VDT users.

Cal/OSHA has been criticized recently for its failure to adopt standards regulating VDT work. (See the article on page 19.) But in September, 1989, Cal/OSHA announced it had issued a "special order" requiring the *Bee* to correct problems related to chairs and work tables which could not be adjusted, insufficient work space, inappropriate wrist rests, and lack of worker training on VDT use. In the absence of a California VDT standard, the order was issued under the authority of the

"general duty" clause in the state's Occupational Safety and Health Act, which requires employers to provide safe workplaces whether or not any standards cover the problems in question.

The order resulted from a complaint filed with Cal/OSHA by the Northern California Newspaper Guild. The Guild charged that more than 30 percent of the newspaper's 133 editorial employees suffered repetitive stress injuries from work on computer terminals.

The order covers all the VDTs at the newspaper, including those in unorganized departments. The action was termed "historic" by Guild officer Larkie Gildersleeve.

Dr. David Rempel, a physician with the

California Department of Health Services who helped investigate the Guild's original complaint, said that more than 50 percent of the *Bee's* VDT users who responded to questions reported hand, forearm, shoulder, and back problems within the past year. There were several cases of carpal tunnel syndrome documented in employees' medical records. Rempel added that the rate of lost workdays among VDT users at the *Bee* was two and one-half times greater than the average in the California newspaper industry.

An executive at the *Bee* said the order would be "contested."

—Adapted in part from *California AFL-CIO News*

## Massachusetts Coalition Releases Monitoring Report

Nearly 700 employees from a dozen industries responded to an activist group's recent survey of electronic monitoring practices on the job. Conducted by the Massachusetts Coalition on New Office Technology (CNOT), the survey sought information on monitoring experiences in 49 selected companies.

The project was part of CNOT's campaign to pass Massachusetts state legislation to protect workers against monitoring abuses. The group has now issued a report describing its findings. **Electronic Monitoring in the Workplace: Supervision or Surveillance?** details the effect of monitoring on productivity, morale, and employee health. The issues of privacy rights, notification, human dignity, and due process are highlighted.

Following is a sampling of the survey results:

- 81% of the workers say that monitoring makes their jobs more stressful.
- 77% say monitoring lowers morale.
- Two-thirds say they cannot do a quality job because they have to work too fast.
- 75% say monitoring does not allow for normal ups and downs in work pace.
- 68% say that their employer uses monitoring results as a basis for disciplining employees.
- Almost 25% have their individual statistics posted publicly.

- 64% say monitoring makes it hard to get up for a break, even to go to the bathroom.

**Electronic Monitoring in the Workplace** dramatically documents the abuses that are taking place. The statistics included in the report will be of great value to anyone who argues in contract negotiations or in legislative hearings for limitations and controls on monitoring practices.

Copies of the report are available from CNOT, 241 St. Botolph Street, Boston, MA 02115. The cost is \$5. for CNOT members, \$10. for non-profit organizations, and \$15. for all others. Add \$1. for postage.

—Adapted in part from *Campaign Update*, published by "9 to 5," National Association of Working Women.

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