

# WOHRC NEWS

WOMEN'S OCCUPATIONAL HEALTH RESOURCE CENTER  
SCHOOL OF PUBLIC HEALTH  
COLUMBIA UNIVERSITY

## Court Blast OSHA Noise Rule

By Mary Sue Henifin

An amendment of the Occupational Safety and Health Administration's noise standard was overturned by a federal appeals court in late 1984. The court decided that employers cannot be required to protect workers from hearing impairment unless it can be proven that no factors outside the workplace contributed to the worker's symptoms.

Such an approach, if followed by other courts would undermine OSHA's ability to regulate many workplace hazards that cause diseases such as cancer, respiratory impairment and reproductive injuries. These diseases, like hearing loss, may be caused by a combination of workplace, home and community exposures to dangerous substances or conditions.

The overturned amendment required employers to monitor noise levels and to annually test all workers exposed to levels greater than 85 decibels (dB). Employers were then required to provide further protection for workers suffering from signifi-

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As WOHRC News goes to press the Occupational Safety and Health Administration has ordered its field offices to resume full enforcement of the hearing conservation amendment to the OSHA noise standard. The order follows the granting of OSHA's petition to the 4th U.S. Circuit Court of Appeals for a rehearing of the case by the full court.

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cant hearing loss. Both the cotton dust and lead standards also require medical monitoring of workers and employer-provided protections if symptoms are discovered.

The court invalidated the noise amendment because it required employers to take action to protect employees suffering hearing impairment even when "such a hearing loss can result from non-occupational noise exposure just as easily as it can from occupational exposure. Airplanes, hunting

## •• Briefly Noted ••

A WHITE HOUSE OFFICE OF SCIENCE AND TECHNOLOGY formal report on chemical carcinogens was issued in March. The report is the culmination of a two-year effort by 20 senior scientists from nine federal health related agencies to reach agreement on basic scientific principles to be used by various federal agencies in their cancer-risk assessment activities.

The OSTP approach is more cautious than previous agency approaches, such as the proposed OSHA generic carcinogens policy which considered all animal carcinogens to be suspect human carcinogens. The widely-respected International Agency for Research on Cancer (IARC) principle similarly holds it to be "reasonable" to regard well-established animal carcinogens as human carcinogens.

OSTP modifies IARC principles to include the possibility of evaluating other "relevant" data in order not to "foreclose further inquiry into the human relevance of animal carcinogens."

The OSTP report "Chemical Carcinogens: A Review of the Science and Its Associated Principles," published March 14 in the Federal Register is available from the U.S. GPO, Washington D.C. 20402, (202)783-3238.

**THE TOXIC PROPERTIES OF FORMALDEHYDE** have been further elucidated in recent studies from the National Cancer Institute and Microbiological Associates published in Science 228,89(1985) where it was shown that the chemical inhibits the repair of DNA lesions which had been induced by the potent carcinogen N-methylnitrosamine. It appears that formaldehyde may have the ability to enhance the action of other carcinogens and mutagens. Other Swedish researchers have recently shown that NMU and formaldehyde together have greatly enhanced mutagenic activity in human test cells. Formaldehyde is a commonly used chemical in the laboratory, in industrial processes, in home products and is a component of cigarette smoke and indoor air pollution.

## Int'l Labour Office

WOHRC Executive Director Jeanne Stellman will be spending several months at the International Labour Office in Geneva Switzerland to assist the ILO in development of materials and programs with regard to occupational health and women workers, with a particular emphasis on international policies.

## Canada

The Canadian Center for Occupational Health and Safety has announced the reappointment of Dr. Gordon Atherley as President and Chief Executive Officer. The Center is "administered by labour, management and governments and is dedicated to promoting health and safety in Canadian workplaces by gathering and distributing useful and trustworthy information." It is located at 250 Main Street East, Hamilton Ontario L8N 1H6 and has a great quantity of useful information available.



## Sweden

A call for papers for the International Scientific Conference Work with Display Units. One of the major areas of interest in the conference will be the special impact of VDU's on women workers. WOHRC Executive Director Stellman is an American coordinator of the conference. Other foci include job stress, workload, skill enhancement.

Abstracts are due July 31, 1985. Information about the conference and formats for abstracts can be obtained from WWDU, NBOSH, S-171 84 SOLNA Sweden.

## Work History

# Shorter Work Week Focus of Long Struggle

By Vilma R. Hunt

A consistent thread running through labor history has been the effort to improve the hours of work in a day. In the 1830's nascent trade unions were forming. They called for action against deplorable conditions of women and children working in factories where "female labor was a physical and moral injury to women" (and a competitive menace to man!)

Organizing efforts among workers for support of the passage of the 10-hour workday law became intense during the 1830's and 1840's. In 1842 a petition from the Lowell textile mill workers stated that "it would in the first place serve to lengthen the lives of those employed, by giving them a greater opportunity to breathe the pure air of heaven, rather than the heated air of the mills."

As the controversy gained strength newspaper reports described the loss of "health, spirits and morals" among factory girls— "when they can toil no longer they go home to die." Nearly 5000 women worked in the Lowell mills on a 12 hour and 15 minute average workday.

The degrading and unhealthy working conditions were not anathema to everyone,



especially some experts involved in the struggle. For example, in 1841 "A Vindication of the Character and Condition of the Females Employed in the Lowell Mills" was written by a local physician who claimed that "the manufacturing population of this city is the healthiest portion of the population."

He had, of course, ignored the unique character of Lowell, where 65% of the population was 15 to 40 years of age. Mortality rates in Lowell were naturally lower than the cities of Salem, Worcester and Providence, with their much older populations. This now well recognized statistical effect occurs in most working populations and is called the "healthy worker effect" which appears to have little to do with actual long-term health and well-being of working people.

This physician's approach to epidemiology was to ask 2611 women at work whether their health was better, as good or worse than before their employment in the textile mills. 6.5% replied 'better,' 60%, 'the same' and a full 33.6% replied 'worse.' He confirmed the worker self-reports with a survey of their overseers in the mills, asking them whether the women under their control looked well, rosy, fat and healthy compared to pale, thin and so on.

Many people were understandably not convinced by this "research." In 1845 the Lowell Female Labor Reform Association, under the leadership of Sarah G. Bagley, was formed and actively supported a 10-hour workday reform. "Our unmitigated labor is to the highest degree destructive to the health . . . and serves to injure the constitutions of future generations," they wrote.

The ten hour day was not yet won when the employers in Lowell reduced the workday to 11 hours and 58 minutes and in 1848 the technical arguments still were raging. In 1848 the American Medical Association took up the issue at their annual convention, discussing another report prepared by a Lowell physician.

Unbelievably his report was a contribution to the continued rejection of the shorter workday! His findings were that the major cause of hospitalization in Lowell was typhoid which could be attributed to the poor ventilation and high prevalence of tuberculosis in the mills. That ill-health was related to working conditions was now tacitly acknowledged but the argument was twisted to imply that it was the environment, and not the excessively long workday, that was the problem.

Controversies over the exact causes of ill-health in workers, then as now, were a political factor in the difficult fight over conditions of work and it was many years before a 10-hour workday was a uniform right of workers in the United States.

Source: George Rosen, "The Medical Aspects of the Controversy over Factory Conditions in New England, 1840-1850," in *From Medical Police to Social Medicine, Essays of the History of Health Care*. Science History Publications, New York, 1974.

Dr. Vilma Hunt is a Professor at Pennsylvania State University and a noted authority on women's occupational health. She is a Mellon Research Fellow at MIT this year.

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## Editorial

# What's a Woman's Work Worth?

The issue of the "comparable worth" of women's work is a major topic of public debate and policy (see WOHR News 6(6).) Last November the U.S. Department of Labor gave us some idea of an actual dollar figure when they issued a rule permitting a certification process for knitters who make items such as ski caps, mittens and sweaters, in their homes. Several thousands of women work in their homes doing such knitting, often on knitting machines.

Their labor had been illegal for many years but now, the Government contends that child and minimum wage laws could be enforced through required log keeping procedures for hours of work.

We know and sympathize with the plight of many women who have all the responsibilities of household work, and childcare and still need and want to work but cannot afford to pay for help in the house—or may not want to leave their children—or cannot find a suitable job. That is the plight of many of us. For many of the women in question it was a choice between working illegally or working legally.

But, on the other hand, we are very much disturbed by the implications of this new rule. The average medium sized man's worsted weight sweater contains about 35,000 stitches. Let's assume that the knitter receives about \$20 for her work. Can

she handknit the sweater in less than a day. Some women do use machines—but the delusion is still obvious.

Let's consider the other implications. We noted with great interest that the lifting of the ban on home knitting was picked up in several publications devoted to the telecommunications industry. The *Telecommuting Review: the Gordon Report* noted that both *The Wall Street Journal* and *The New York Times* had editorially favored the new rule and would supply copies to interested readers.

*The Wall Street Journal* noted "People who want to work at home, whether on knitting machines or computers, now need protection against government and union intrusion."

Today it is sweaters, tomorrow data entry. Long hours of keyboard work, at standard wages, without companionship, without fringe benefits, without chance of advancement. Is this what the future holds? It looks as if the forward march of science and technology is accompanied by the rapid retreat of progressive social policy.

Women, and men, need fulfilling jobs, healthful workplaces, living wages and benefits and the companionship and support of co-workers and peers—not the isolation and underpayment of work at home.

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## OSHA NOISE RULE

(Continued from page 1)

rifles, loud music and a myriad of other sources produce noise potentially as damaging as any at the workplace. Yet the Amendment makes no distinction between hearing loss caused by workplace sources and loss caused by non-workplace sources."

The court ignored the cumulative nature of hearing loss when individuals are exposed to both workplace and environmental noise and failed to take note of the many research studies linking hearing loss with workplace noise. However, the court emphasized that the estimated cost of employer compliance with the Amendment would be \$254,321,000.

One of the three judges hearing the case disagreed with the outcome. He argued:

"Breathing automobile exhaust and general air pollution, for example, is not healing to a wounded lung. That hardly justifies failure to regulate noxious workplace fumes that inflicted the primary wound. Nor would there be logic to characterizing regulation of the fumes as non-

occupational because the condition inflicted is aggravated by outside irritants."

A standard which would have prohibited exposure above 85 dB was proposed during the Carter Administration. The much weaker hearing conservation amendment was enacted in its place in 1983.

Noise is one of the oldest known occupational hazards. As early as 600 B.C. the Greeks banned the hammering of metal-work within city limits of Sybaris to protect hearing and health. The 18th century Italian physician Ramazzini described deafness in coppersmiths and blacksmiths due to the noise of their hammering. To this day steelworkers and similar industrial workers suffer much more deafness than the population at large. The Forging Industry Association, an employer trade organization, brought the court case challenging the amendment.

OSHA statistics show that of the 2.2 million workers exposed to noise levels

## BRIEFLY NOTED

(Continued from page 1)

### STATE LEGISLATIVE ACTIVITIES

**CONTINUE** to play a prominent role in the occupational safety and health scene in the United States. A bill providing employees with the right to choose their own physician for evaluation and treatment when injured or ill as a result of a purported workplace insult is being hotly contested in the Maryland legislature, according to reports in the Baltimore Sunday Sunpapers recently. The Maryland Committee on Occupational Safety and Health, MaryCOSH, had been extremely active in having the bill introduced, including the organizing of a state-wide postcard mail-in which netted nearly 1,000 responses from concerned individuals. The Maryland Chamber of Commerce and others oppose the bill stating that it could result in a loss of control over employees' disability payments that could cost the state and local governments as much as \$620,000 per year. Proponents cite graphic examples of poor treatment under "company doctors" in response or talk of difficulties medical practitioners may face trying to serve the best interest of their patients while under contract to an employer.

### NEW MEXICO'S GOVERNOR

recently signed an executive order governing the use of video display terminals among state office employees. Among the requirements of the bill are well-designed workstations including adjustable chairs, document holders, footrests, and specifications for the size and design of the VDT screen as well as optimum noise and temperature levels, manager-worker agreed upon work breaks, maintenance of appropriate lighting to minimize eye fatigue.

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between 85 and 90 dB, 10 to 15 percent will suffer material hearing impairment as will 21 to 29 percent of workers exposed to 90 dB. If noise exposure were reduced from 90 dB to 85 dB over a forty year exposure period, 580,000 employees, more than one-half million people, would be spared work-related hearing impairment.

*Reference: Forging Industry Association v. Secretary of Labor, 748 F. 2d 210 (4th Cir. 1984)*

Mary Sue Henifin, MPH, former Resource Coordinator for WOHR, is completing her law degree and is currently working at the Women's Rights Project, American Civil Liberties Union.

# VLF and VDTs—Some Simple Solutions

Although there has been much *anxiety* about the possibilities of radiation exposure from video display terminals (VDTs), results of monitoring for most types of ionizing and non-ionizing radiation have been reassuringly low. Some terminals emit non-ionizing radiation in the very low frequency (VLF) range of 3–30 Hertz (Hz), generating electric fields in the 70–300 volts/meter range at a distance of 10–30 centimeters (about 4–8 inches) from the terminal. The VLF is pulsed and is highest near a part of the VDT called the high voltage flyback transformer, usually located on the terminal side.

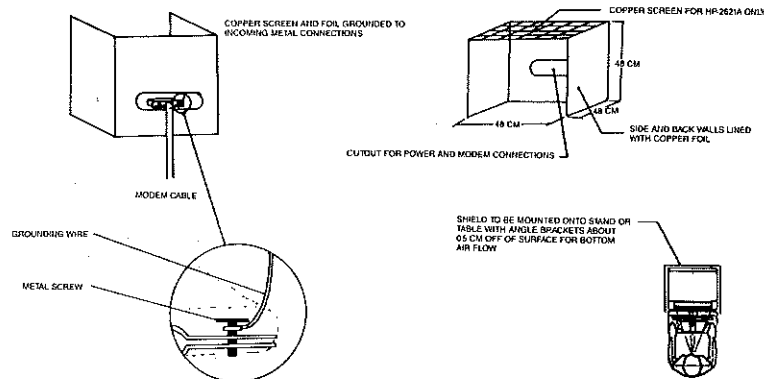
In 1979 the Federal Communications Commission, FCC, began regulating the amount of electronic leakage permitted in new electronic equipment, not so much for health reasons but because VLF can interfere with the normal operations of computers and other equipment. Some experts think that outsiders can "spy" on users of radiation-leaking computer equipment by decoding the patterns of the emissions, possibly posing a security risk. FCC regulations only apply to new equipment. Millions of unshielded VDTs are already in use.

No human effects have ever been observed from exposure to VLF and no governmental standards for radiation in this frequency range exist. The American Conference of Governmental Industrial Hygienists, ACGIH, a widely recognized organization for setting standards, has developed a standard for protection against electrical shock and burn hazards from radiation in this frequency range which occur at much higher levels and are not applicable to pulsed VLF from VDTs. The ACGIH notes in its comments on the standard that "all radiofrequency radiation exposures should be kept as low as reasonably possible given the current state of knowledge on human effects, particularly non-thermal effects."

In keeping with the philosophy expressed by the ACGIH, and others, WOHRC is giving its readers information on ways to minimize the levels of VLF emanating from VDTs. While we don't know that VLF is a hazard, we do know many VDTs can be easily modified as shown in the accompanying diagrams, to eliminate VLF.

## Shielding the Screen

The screen can leak VLF and can be shielded with transparent conductive mesh filter. Both commercially available screens and homemade approaches are available. These shields have the advantage of reducing VLF electric field static electricity, glare and reflection. The Sun-Flex Com-



All the devices and techniques are based on the fact that metal stops VLF. Shields are metals grids or plastics or paints doped with metals for conducting away the electric field and are grounded, usually to the chassis of the terminal to drain off the electric field.

Before you begin building home kits or modifying your VDT, it is wise to check with the manufacturer to see if they already market a case shield retrofit package. You must also check to see whether the shielding you are planning will invalidate any existing warranties or interfere with the functioning of the unit.

External shielding, which does not require taking off the terminal cover, was designed by Karel Marha of the Canadian Centre for Occupational Health and Safety CCOHS, and costs about \$15 to fabricate. As shown above, plywood or cardboard walls, lined with copper foil with a grounding wire soldered to it are all that is required.

A second method involves removing the VDT case cover. A conductive organic-type paint, filled with graphite, copper, nickel or silver sprayed over the inside or outside of the terminal cover to a thickness of 0.002–0.005 inches, with a wire to ground can be used. Silver is preferred since both copper and nickel tend to oxidize over time.

Aluminum, copper, brass or other conductive metal or fine mesh lining can also be used to cover the case, also with a wire to ground. Installation of such shielding must allow for surface airflow and perforated metal or mesh, rather than solid sheets, should be used over ventilation openings.

These latter techniques require some knowledge of the equipment. There are many electronic repair shops and local consultants throughout industry who could readily carry out the modifications for the interested user or employer.

pany sells the *Sun-Flex Voltfree* filter, a square shielded mounted on plastic frames which can be installed directly on the tube surface or mounted on the terminal.

The *Sentinel VDT Body Guard* is made of a stainless steel micromesh and conductive coatings layered between two sheets of embossed acrylic plastic. It mounts in front of the terminal.

Throughout this factsheet we have provided names and references of suppliers and designers of equipment and products. WOHRC does not endorse these products nor guarantee their usefulness. They are included here for the convenience and information of readers who may wish to seek further information on this important topic.

This factsheet is adapted from a paper by Eileen Senn Tarlau, USDOL-OSHA, Philadelphia Area Office, with her kind permission. Her paper was written and presented by her in her private capacity. Accordingly, the views and conclusions expressed therein are those of the author alone and should not be interpreted or construed as either official policy of OSHA or of any other governmental agency.

## Notes and References

1. Some of the discussion and references are taken from a comprehensive new book by Bob DeMatteo, *Terminal Shock*, published by NC Press, Inc., 31 Portland St., Toronto, Ontario, Canada M5V 2Y9 (416) 593-6284. @ \$9.95. Bulk rates available.
2. Several research papers relevant for this discussion include: Marha, K. *The State of Knowledge Concerning Radiation Emissions from Video Display Terminals*. CCOHS, 1982. (All CCOHS publications may be ordered from Publications/Inquiries Office, Canadian Centre for Occupational Health and Safety, 250 Main Street East, Hamilton Ontario Canada L8N 1H6); Marha, K., Spinner B., Purdham, J. *The Case for Concern about Very Low Frequency Fields from Visual Display Terminals: The Need for Further Research and Shielding of VDTs*. CCOHS, 1983; Pinsky, M.A., ed. *VDT Radiation: New Research Suggests Biological Effects Possible*. VDT News. 1(5):4-9, 1984. Marha, K. *VLF-Very Low Frequency Fields Near VDTs and an Example of Their Removal*. CCOHS, 1983. Weiss, M.M., Peterson, R.C. *Electromagnetic Radiation Emitted from Video Computer Terminals*. Am. Ind. Hyg. Assoc. J. 40:300-309, 1979.
3. ACGIH recommended standards can be found in *TLVs Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment Adopted by ACGIH 1984-5*, pp.88-92. 4. Paints are available from Miller Stephenson Chemical Company, Inc., George Washington Highway, Danbury CT 06810. (203)743-4447 and others. 5. Sun-Flex Company, Inc., 20 Pimental Court, Novato CA 94947. (415)883-1221. 6. Sentinel Bio-Tech Products, 1 Sentinel Plaza, Hyannis MA 02601. (617)775-5220.