

*Job Safety & Health Quarterly*

# JSHQ

Volume 10 Number 4  
Summer 1999

## Construction Hazards and Fatalities Remain High





**U.S. Department of Labor**  
Alexis M. Herman, Secretary



Occupational Safety and Health Administration  
Charles N. Jeffress, Assistant Secretary

*Job Safety & Health Quarterly* is the official magazine of the Occupational Safety and Health Administration, U.S. Department of Labor. It is available by subscription from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, for \$13.00 per year, or \$16.25 if mailed to a foreign address. Single copies are \$4.25 (U.S.) or \$5.81 (foreign).

The Secretary of Labor has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget.

Expressions of opinion in articles from sources outside the U.S. Department of Labor do not necessarily represent the views of the Department. Mention or depiction of companies or trade name products in no way constitutes endorsement by the Department of Labor.

Material contained in this publication is public domain and may be reproduced fully or partially without permission of the Federal Government. Source credit is requested but not required. Permission is required only to reproduce copyrighted photos and other copyrighted material contained herein.

Editorial communications should be addressed to the Editor, *Job Safety & Health Quarterly*, Occupational Safety and Health Administration, 200 Constitution Avenue, N.W., Washington, DC 20210.

#### **STAFF**

Anne Crown-Cyr, *Editor*  
Kerri L. Lawrence, *Associate Editor*  
Edwin Bowers, *Writer*  
Pat Foreman, *Writer*  
Joanne Burgoyne, *Writer*  
Kristin Landry, GVA Inc., *Art/Production*  
Photography: Jeff Caplan, NASA Langley Research Center, Langley MD; p. 5. Tom Marple, Office of Construction Services, Washington D.C.; p. 17. OSHA Regional Office, Dallas TX; p. 20. Michael Farley, Department of Labor and Industry, Olympia, WA; pp. 26-31. James Honerman, Minnesota Department of Labor and Industry in St. Paul, MN; pp. 32-40.

## **From the Editor...**

We're changing our look. We want *JSHQ* to have a more contemporary and sophisticated appearance. So, you'll see some changes in the next couple of issues that we hope you'll like.

In this issue, our cover story looks at the continued hazards in the construction industry. Many of OSHA's outreach and local emphasis programs, not to mention enforcement, already focus on the highest hazards responsible for the most fatalities in this line of work.

A state story on another type of potentially hazardous work—logging—shows how government, business, and industry are working together to reduce accidents and injuries in Minnesota. We also feature the latest update on OSHA-approved state plans and their special training and outreach programs.

Our *Mark Your Calendar* and *What's Happening?* columns, too, contain information on current state and federal safety and health training courses as well as new members in OSHA's Voluntary Protection Programs. *Toolbox* identifies the hazards of holes at construction sites. *FatalFacts* covers trenching and electrocution hazards.

We would like to hear from you. Please fill out the reader response card in this issue and give us your ideas and suggestions.

Enjoy the issue.

A handwritten signature in cursive script that reads "Anne Crown-Cyr".

Anne Crown-Cyr

## FEATURES

Construction Hazards and Fatalities Remain High <i>Anne Crown-Cyr</i>	16
Preventing Job Hazards through Training and Education	26
Minnesota OSHA's LogSafe Program Takes Root <i>James Honerman</i>	32



## DEPARTMENTS

Assistant Secretary's Message	2
Q&A	3
What's Happening?	5
Mark Your Calendar	7
Toolbox	41
FatalFacts	43







**D**uring fatality investigations, compliance officers frequently hear the same story over and over again. A grief-stricken foreman says, “I was only trying to save some time. I really didn’t think it was worth the trouble to use the safety equipment.” But too often, shortcuts end up costing more in money and worker injuries and even fatalities. Safety, time, and money are all tied to high performance and profit.

The loss of life in the construction industry is tragic and unnecessary. More construction workers die on the job than workers in any other field—1,100 fatalities in 1997. In some cases, these workers were relatives of the employer. Small, family-owned businesses make up a large segment of the construction industry. Death on the job, particularly under these circumstances, vividly reminds all of us how important safety really is—our lives and the lives of those we love depend on it.

What can be done to reduce fatalities in the construction industry? We know that employers who have effective safety and health programs save lives. Currently, OSHA is working on several construction initiatives that demon-

strate how safety and health can pay big dividends.

In the Roofing Industry Partnership, contractors in Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin can partner with OSHA, the National Roofing Contractors Association, the United Union of Roofers, Waterproofers and Allied Trades, the National Safety Council, and the CNA Insurance Companies to develop excellent safety and health programs to address their high incidence of fatalities. Those who demonstrate outstanding safety and health programs qualify for limited scope inspections and penalty reductions.

This past spring, OSHA launched a new emphasis program in Florida. The CARE program—Construction Accident Reduction Emphasis—combines enforcement and outreach. In 1998, one-half of Florida’s work-related deaths occurred in construction. Federal, state, and local organizations concerned with this alarming statistic joined forces to reverse the trend. The first phase includes an awareness campaign urging contractors to think and work safely. The second phase focuses on enforcement with compliance officers traveling across the state to be sure that construction crews get the message. As a direct result of the CARE program, we have two groups of construction employers seeking partnerships in Florida.

CARE emphasizes that preventing accidents and deaths, through training and education, makes sense. But OSHA will use strong enforcement, including significant citations, to reinforce the message that safety education and training are needed.

The successful partnership of government, private industry, and labor in OSHA’s Voluntary Protec-

tion Programs has resulted in injury rates more than 50 percent below the industry average for participating companies. We think that kind of partnership will work in the construction industry.

Accident prevention programs seldom make the headlines, but building collapses, workers’ deaths, and huge proposed penalties do. Prevention, however, is OSHA’s big story. Guardrails, proper scaffolding, trench boxes, and shoring tell the best story—“No deaths or injuries today.”

One of our own OSHA employees has a good story to tell. Recently, while on the way home from work, she saw some hazardous-looking scaffolding—something she was especially conscious of because she had been working on some scaffolding projects at work. She called the State of Virginia’s OSHA office. A compliance officer investigated and got back to her with the findings. Before hanging up the phone, he said, “You saved a life today; there were many problems at the site.”

A good story like this one can happen every day. It won’t get in the newspapers. It won’t show up as an OSHA indicator, but you will know it because it can happen to you. *Everyone* needs to think about workplace safety. Then, construction workers, and all of us, can go home at the end of the workday safe and whole.

A handwritten signature in black ink that reads "Charles Jeffress". The signature is written in a cursive, flowing style.

Charles Jeffress  
Assistant Secretary of Labor  
for Occupational Safety and Health

## Q & A

**Q** What are the latest steps OSHA is taking to combat needlestick injuries?

**A** In May, OSHA issued a report summarizing more than 400 comments from health care workers and others who responded to OSHA's 1998 request for information (*Federal Register* 63:48250-48252, September 9, 1998) on how to better protect health care workers from injuries caused by contaminated needles or other sharp objects.

The agency's current approach to reducing needlesticks also includes considering the addition of a new requirement in the revised recordkeeping rule that employers record all injuries resulting from contaminated needles and sharps. OSHA proposed such a requirement in 1996 and anticipates taking final action on this rulemaking sometime in the fall. OSHA intends to revise its bloodborne pathogens compliance directive later this year to reflect the newer and safer technologies now available—such as safer needle devices. OSHA compliance officers use this directive to enforce the agency's bloodborne pathogens standard. OSHA also plans to propose amending its bloodborne pathogens standard by placing needlestick and sharps injuries on its regulatory agenda this fall.

OSHA currently has a brochure on needlestick prevention. The publication—*How to Prevent Needlestick Injuries: Answers to Some Important Questions*—highlights the dangers of needlesticks, how injuries happen, how to protect employees, and how employers can create a comprehensive needlestick prevention program. The brochure details "safer needle devices" and provides references and other sources of assistance and information. For a



copy of the brochure, please send a self-addressed mailing label to the U.S. Department of Labor, OSHA Publications, P.O. Box 37535, Washington, DC 20013-7535, (202) 693-1888, (202) 693-2498 Fax. The brochure can be downloaded from OSHA's website at [www.osha.gov](http://www.osha.gov).

**Q** Why did OSHA produce an Internet page to help small businesses?

**A** As part of its continuing outreach efforts, OSHA launched the small business web page in May in conjunction with National Small Business Week. The site provides safety and health information and sources of assistance useful for small business employers. The site highlights OSHA interactive software advisors; onsite consultation services; OSHA local offices; training resources; technical information; and Y2K information and resources. A schedule of upcoming events and small business forums also is on the new page at [www.osha.gov](http://www.osha.gov).

Establishment of the website is, in part, a result of OSHA's response to views expressed by entrepreneurs at OSHA's first Small Busi-

ness Forum held in March. The forum gave employers the opportunity to speak with OSHA experts and staff about various topics, including small business programs, OSHA standards, compliance, and training and education.

**Q** What are the latest steps OSHA is taking to reduce injuries and illnesses at high-hazard worksites?

**A** In April, OSHA identified 12,500 workplaces with the highest injury and illness rates and urged proprietors to take steps to strengthen safety and health in their workplaces. Assistant Secretary Charles Jeffress sent letters to the employers, as well as a copy of the injury and illness data for their establishment and a list of the most frequently violated OSHA standards for their particular industry. He indicated that OSHA is encouraging employers to hire outside safety experts to deal with their problems. In addition, OSHA is offering free consultation services to smaller businesses with fewer than 500 employees companywide or 250 workers at a single site. The steps come on the heels of OSHA's announcement that the 2,200 riskiest

workplaces—those with more than 16 injuries or illnesses per 100 workers—are subject to unannounced inspections by OSHA compliance officers. The riskiest workplaces are to be inspected by the end of December.

**Q** What are OSHA's plans for employee participation in consultation visits and informing them of the results of these visits?

**A** Last year, state consultants made approximately 24,000 visits. In the process, they identified about 145,000 hazards that employers then corrected. OSHA is proposing changes to consultation procedures<sup>1</sup> to ensure "active employee participation" in federally funded safety and health consultation visits to worksites. State agencies, with funding from OSHA, run onsite consultation programs that provide, at no cost to the requesting employer, safety and health assistance. Trained safety and health personnel identify workplace hazards, provide advice on compliance with OSHA regulations and standards, and assist in establishing safety and health programs.

Among other things, OSHA is proposing that authorized employees have the right to accompany consultants during the physical inspection of workplaces. Also, the employer would have to post a list of the serious hazards and hazards addressed by OSHA rules that are identified by the consultant, the corrective action proposed, and the dates for completion of the corrective action.

Other proposed revisions to 29 CFR 1908 involve clarifying the relationship between consultation

and enforcement. OSHA regulations provide for a 1-year exemption from general schedule programmed inspections for employers who complete a consultation visit and meet certain requirements, including correcting all hazards and demonstrating that all elements of a safety and health program are in place.

Under the proposed rule, states operating their own OSHA-approved occupational safety and health programs would be expected to have similar requirements for setting up an inspection exemption program. There are currently 25 state plan states; 23 cover the private and public sector (state and local governments) and 2 cover the public sector only.

The agency is asking for comments on the proposal on or before September 30. Submit comments in writing and in duplicate to Docket No. CO-5, Docket Office, Room N-2625, U.S. Department of Labor, 200 Constitution Avenue, N.W., Washington, DC, 20210. Comments that are 10 pages or less may be sent via telefax to (202) 693-1948 but must be followed by a mailed submission of the original and one copy. Comments also may be submitted via OSHA's Internet site at [www.osha-slc.gov/e-comments/e-comments-consult.html](http://www.osha-slc.gov/e-comments/e-comments-consult.html). Information such as studies and journal articles cannot be attached to electronic submissions and must be submitted in duplicate to the above address. The entire record for the agency proposed changes will be available for inspection and copying in the Docket Office. Telephone (202) 693-2350. **JSHQ**

<sup>1</sup> See *Federal Register* 64:35972-35981, July 2, 1999, and *Title 29 of the Code of Federal Regulations (CFR)*, Part 1908. See also **Regulations** and other information on OSHA's website at [www.osha.gov](http://www.osha.gov).



### Conferences

The 15th Annual National Voluntary Protection Programs Participants' Association (VPPPA) Conference to be held September 14-17, 1999 in Washington, DC at the Hilton Washington & Towers. The 4-day conference will focus on how to transform business through partnership. For more information, see VPPPA's website at [www.vpppa.org](http://www.vpppa.org).

### OSHA

#### OSHA Awards \$339,000 in Shipyard Training Grants

On June 16, 1999, OSHA awarded \$339,000 in grants to five organizations to develop and conduct training programs on recognizing and avoiding safety and health hazards for workers in small shipyards.

As part of an annual series, OSHA awards the Susan Harwood Training Grants to safety and health organizations, employer associations, educational institutions, and other nonprofit organizations. The grants—named for Susan Harwood, a long-time OSHA employee and former director of risk assessment for the Health Standards Directorate, who died in

1996—are for worker safety and health training in high-hazard industries.

OSHA awarded grants of \$100,000 each to Bishop State Community College, Mobile, AL, and Florida Community College, Jacksonville, FL. The South Central Planning and Development Commission, Thibodaux, LA, received \$71,000; the National Fire Protection Association, Quincy, MA, received \$40,000; and the Shipbuilders Council of America, Arlington, VA, received \$28,000.

In September, OSHA will award approximately \$1.8 million in Harwood grants for health services, construction, and the prevention of amputations in manufacturing.

For more information on training grants, contact the Division of Training and Educational Programs at the OSHA Training Institute in Des Plaines, IL, phone (847) 297-4810.

#### NASA's Langley Research Center Enters Prestigious VPP Program

At a June 28, 1999, awards ceremony in Hampton, VA, OSHA recognized the National Aeronautics and Space Administration (NASA) Langley Research Center for its commitment to worker

safety and health.

In October 1998, NASA's Langley Research Center became the first federal facility to be approved for membership in OSHA's prestigious Voluntary Program Programs (VPP) *Star* program. VPP emphasizes the importance of effective safety and health management systems in preventing and controlling workplace injuries and illnesses.

Among other things, the center won praise for its excellence in safety and health management, and employee training and involvement.

In an awards ceremony in Bolivar, MS, OSHA recognized the entry of Citizens Memorial Health Care Facility into OSHA's VPP program as a *Merit* site. This is the first skilled nursing care facility in the country to achieve VPP status.

During the July 9, 1999, ceremony at the facility, Assistant Secretary Jeffress presented the *Merit* certificate and flag to Citizens officials. According to Jeffress, "Citizens Memorial Health Care Facility proves that it is possible to deliver top-notch nursing care to residents and preserve the well-being of employees. Citizens is a model for other nursing homes that want to improve their safety and health programs."

The *Merit* program is the first step towards achieving OSHA's most prestigious safety and health recognition, the *Star* program. The Citizens Memorial Health Care Facility achieved the *Merit* level by implementing a comprehensive safety and health program including management commitment and employee involvement and substantially reducing their injury rates.



OSHA Assistant Secretary Charles N. Jeffress (left) celebrates Langley's VPP status with Langley Center Director Jeremiah F. Creedon (center) and NASA Administrator Daniel S. Goldin (right).

# VPP Update

## Star Program

### New

- General Electric Plastics, Washington, WV
- Kraft Foods, Inc., Springfield, MO
- Infineum USA, L.P., Linden, NJ
- Marathon Ashland Petroleum, LLC Illinois Refining Division., Robinson, IL
- National Aeronautics and Space Administration (NASA) Johnson Space Center, Houston, TX
- UNUM Life Insurance Co. of America, Portland, ME

## Continuing

### Years

- |  |    |
|--|----|
| • Ticona Limited Liability Company<br>Summit Facility, Summit, NJ (Formerly Hoeschst Celanese) | 10 |
| • Exxon Mobil Chemical Company's<br>Edison Laboratory, Edison, NJ                              | 15 |
| • Exxon Mobil Chemical Company's<br>Chemical Products, Edison, NJ                              | 14 |
| • International Paper, Joplin Treated<br>Wood Facility, Joplin, MO                             | 4  |
| • General Electrics Plastics Ottawa Plant<br>Ottawa, IL  | 3  |
| • General Electric Plastics<br>Washington, WV  | 3  |
| • Mary Kay Cosmetics, Inc.<br>Dallas, TX   | 3  |

## Merit Program

### New

- Armour Swift-Eckrich, Brown 'N' Serve Plant, St. Charles, IL
- CIBA Vision-Amwiler Plant, Atlanta, GA
- Ft. James Corporation, Muskogee, OK
- General Electric Silicones, Waterford, NY
- Thrall Car Manufacturing Co., Cartersville, GA

## Advancement Sites

- Amoco Fabrics and Fibers Co., Hazlehurst, GA; Bayer Corporation, Baytown, TX;
- Dock Resins Corporation, Linden, NJ; and Frito-Lay, Inc., Monroe, WI, from **Merit** to **Star**

This brings the total participants to **423** sites in the Federal VPP: **348** in **Star**, **57** in **Merit**, and **18** in **Demonstration**.

For more information on OSHA's VPP, write the OSHA Directorate of Federal-State Operations, 200 Constitution Avenue, N.W., Room N-3700, Washington, DC 20210; or call (202) 693-2213. See also **Outreach** on OSHA's website at [www.osha.gov](http://www.osha.gov).



## MARK YOUR CALENDAR

# OSHA Training Institute Schedule

### 201 Hazardous Materials —

Covers OSHA general industry standards and consensus and proprietary standards relating to hazardous materials such as flammable and combustible liquids, compressed gases, LP-gases, and cryogenic liquids.

Tuition: \$912  
Dates: 10/28/99 - 11/05/99

### 203 Basic Electrical Principles

Covers basic principles of electricity, including Ohm's Law, series and parallel circuits, and adverse effects of electricity on the human body.

Tuition: \$480  
Dates: 11/16/99 - 11/19/99

### 208 Cranes and Materials Handling for General Industry

Discusses overhead cranes, hoists, and powered industrial trucks used in general industry as well as overhead and crane inspection and maintenance procedures.

Tuition: \$480  
Dates: 11/02/99 - 11/05/99

### 222 Respiratory Protection —

Discusses the requirements for establishing, maintaining, and monitoring a respirator program. Includes terminology, OSHA and ANSI standards, NIOSH certifications, and medical evaluation recommendations.

Tuition: \$988  
Dates: 09/16/99 - 09/24/99

### 300 Safety and Health for Oil and Gas Well Operations —

Focuses on the safety and health aspects of on- and off-shore oil and gas well operations. Includes terminology, processes, equipment and materials, and special hazards.

Tuition: \$480  
Dates: 11/16/99 - 11/19/99

### 308 Principles of Scaffolding —

Presents detailed information on the safety aspects of scaffolding from installation to dismantling. Includes built-up scaffolds, suspension scaffolds, and interpretation of related standards. Demonstrates installation and dismantling methods.

Tuition: \$520  
Dates: 09/14/99 - 09/17/99





### 501 Trainer Course in Occupational Safety and Health Standards for General Industry

Teaches how the provisions of the OSH Act may be implemented in the workplace. Includes an introduction to OSHA's general industry standards and an overview of the requirements of the more frequently referenced standards.

Tuition: \$624

Dates: 11/15/99 - 11/19/99

### 309a Electrical Standards

A shortened version of course 309 that provides an in-depth study of OSHA's electrical standards and hazards associated with electrical installations and equipment. Includes single- and three-phase systems, cord- and plug-connected and fixed equipment, grounding, ground-fault circuit interrupters, hazardous locations, and safety-related work practices.

Tuition: \$676

Dates: 09/13/99 - 09/17/99

### 502 Update for Construction Industry Outreach Trainers

For personnel in the private sector who have completed course 500 and who are active trainers in the outreach program. Provides an update on such topics as OSHA construction standards, policies, and regulations.

Tuition: \$432

Dates: 11/02/99 - 11/04/99

### 601 Occupational Safety and Health Course for Other Federal Agencies

Designed for full-time federal agency safety and health officers or supervisors assigned responsibilities under Executive Order 12196 and CFR 1960.

Tuition: \$1,272

Dates: 11/29/99 - 12/10/99

To register for courses or to obtain a training catalog, write the OSHA Training Institute, 1555 Times Drive, Des Plaines, IL 60018; or call (847) 297-4913. See also **Outreach** on OSHA's website at [www.osha.gov](http://www.osha.gov).



# OSHA Training Institute Education Centers

The OSHA Training Institute also has a program for other institutions to conduct OSHA courses for the private sector and other federal agencies. These include Eastern Michigan University/United Auto Workers, Ypsilanti, MI, (800) 932-8689; Georgia Technological Research Institute, Atlanta, GA, (800) 653-3629; Great Lakes OSHA Training Consortium, St. Paul, MN, (800) 493-2060; Keene State College, Manchester, NH, (800) 449-6742; Metropolitan

Community Colleges-Business and Technology Center, Kansas City, MO, (800) 841-7158; National Resource Center for OSHA Training, Washington, DC, (800) 367-6724; Niagara County Community College, Lockport, NY, (800) 280-6742; Red Rocks Community College and Trinidad State Junior College, Lakewood, CO, (800) 933-8394; The National Safety Education Center, DeKalb, IL, (800) 656-5317; Texas Engineering Extension Service, Mesquite, TX,

(800) 723-3811; University of California, San Diego, CA, (800) 358-9206; and University of Washington, Seattle, WA, (800) 326-7568.

For tuition rates and registration information, contact the institution offering the courses and see also OSHA's website at [www.osha.gov](http://www.osha.gov). For **alternate courses locations noted in parentheses**, please contact the institution for more information.

## 201a Hazardous Materials

---

Location: Eastern Michigan University-United Auto Workers (Livonia, MI)

Dates: 10/25/99 - 10/28/99

Location: Metropolitan Community Colleges—Business and Technology Center

Dates: 10/11/99 - 10/14/99

## 204a Machinery and Machine Guarding Standards

---

Location: Keene State College (Auburn, ME)

Dates: 10/04/99 - 10/08/99

Location: Metropolitan Community Colleges—Business and Technology Center

Dates: 11/15/99 - 11/18/99

Location: Niagara County Community College

Dates: 10/18/99 - 10/21/99

Location: Texas Engineering Extension Service (Houston, TX)

Dates: 11/15/99 - 11/18/99

Location: University of California, San Diego

Dates: 09/13/99 - 09/16/99

## 225 Principles of Ergonomics

---

Location: Eastern Michigan University-United Auto Workers

Dates: 11/16/99 - 11/18/99

Location: Metropolitan Community Colleges—Business and Technology Center

Dates: 11/29/99 - 12/02/99

Location: National Safety Education Center

Dates: 09/14/99 - 09/16/99

Location: Niagara County Community College Dates: 11/29/99 - 12/02/99  
 Location: Red Rocks Community College/Trinidad State Junior College Dates: 09/22/99 - 09/24/99  
 Location: University of California Dates: 11/15/99 - 11/18/99

**226 Permit Required Confined Space Entry**

Location: Eastern Michigan University-United Auto Workers (Findlay, OH) Dates: 09/28/99 - 09/30/99  
 11/16/99 - 11/18/99  
 Location: Metropolitan Community Colleges—Business and Technology Center Dates: 10/04/99 - 10/06/99  
 Location: Niagara County Community College Dates: 10/25/99 - 10/28/99  
 Location: Red Rocks Community College-Trinidad State Junior College Dates: 11/22/99 - 11/24/99  
 Location: Texas Engineering Extension Service (Houston, TX) Dates: 11/01/99 - 11/03/99  
 Location: University of California Dates: 11/15/99 - 11/17/99



**309a Electrical Standards**

Location: Eastern Michigan University-United Auto Workers Dates: 10/25/99 - 10/28/99  
 Location: Great Lakes OSHA Training Consortium (Cincinnati, OH) Dates: 11/01/99 - 11/04/99  
 Location: Metropolitan Community Colleges—Business and Technology Center Dates: 11/08/99 - 11/11/99  
 Location: Niagara County Community College Dates: 11/01/99 - 11/04/99  
 Location: Red Rocks Community College-Trinidad State Junior College Dates: 09/28/99 - 10/01/99  
 Location: Texas Engineering Extension Service Dates: 10/04/99 - 10/08/99

**500 Trainer Course in Occupational Safety and Health Standards for the Construction Industry**

Location: Eastern Michigan University-United Auto Workers (Findlay, OH) Dates: 09/20/99 - 09/24/99  
 10/18/99 - 10/21/99  
 Location: Georgia Technological Research Institute Dates: 10/25/99 - 10/29/99



Location: Great Lakes OSHA Training Consortium	Dates: 09/14/99 - 09/17/99
Location: Keene State College  (Middletown, CT) (Auburn, ME)	Dates: 10/04/99 - 10/08/99 11/01/99 - 11/05/99 10/25/99 - 10/28/99 11/01/99 - 11/05/99
Location: Metropolitan Community Colleges— Business and Technology Center	Dates: 10/18/99 - 10/21/99
Location: National Resource Center for OSHA Training (Morgantown, WV)	Dates: 09/27/99 - 09/30/99  10/12/99 - 10/15/99
Location: National Safety Education Center (Itasca, IL) (Hillside, IL)	Dates: 09/20/99 - 09/24/99  10/04/99 - 10/08/99 11/15/99 - 11/19/99
Location: Niagara County Community College	Dates: 09/20/99 - 09/23/99 11/08/99 - 11/11/99
Location: Red Rocks Community College	Dates: 09/13/99 - 09/16/99 10/04/99 - 10/07/99 11/01/99 - 11/04/99 11/29/99 - 12/02/99
Location: Texas Engineering Extension Service (Corpus Christi, TX) (Snyder, TX) (Houston, TX)	Dates: 09/13/99 - 09/17/99 10/25/99 - 10/29/99 09/27/99 - 10/01/99 10/04/99 - 10/08/99 11/08/99 - 11/12/99
Location: University of California, San Diego	Dates: 09/13/99 - 09/16/99
Location: University of Washington (Richland, WA)	Dates: 10/25/99 - 10/28/99





### 501 Trainer Course in Occupational Safety and Health Standards for General Industry

Location: Eastern Michigan University-United Auto Workers	Dates: 09/13/99 - 09/17/99 10/11/99 - 10/14/99
Location: Georgia Technological Research Institute (Charlotte, NC)	Dates: 09/20/99 - 09/24/99 11/08/99 - 11/12/99 10/11/99 - 10/15/99
Location: Great Lakes OSHA Training Consortium	Dates: 09/20/99 - 09/23/99
Location: Keene State College  (Auburn, ME) (Bangor, ME) (Groton, CT)	Dates: 10/18/99 - 10/22/99 11/15/99 - 11/19/99 09/13/99 - 09/17/99 10/18/99 - 10/22/99 10/25/99 - 10/29/99
Location: Metropolitan Community Colleges— Business and Technology Center	Dates: 09/13/99 - 09/16/99 11/08/99 - 11/11/99
Location: National Resource Center for OSHA Training (Williamsburg, VA) (Silver Spring, MD)	Dates: 09/20/99 - 09/23/99  10/26/99 - 10/29/99 11/15/99 - 11/18/99
Location: National Safety Education Center (Appleton, WI) (Elgin, IL)	Dates: 09/20/99 - 09/24/99  10/25/99 - 10/29/99 11/15/99 - 11/19/99
Location: Niagara County Community College	Dates: 09/13/99 - 09/16/99 10/04/99 - 10/07/99 11/01/99 - 11/04/99



Location: Red Rocks Community College	Dates: 09/20/99 - 09/23/99 10/11/99 - 10/14/99 11/08/99 - 11/11/99
Location: Texas Engineering Extension Service (Santa Fe, NM) (Baton Rouge, LA) (Austin, TX)	Dates: 09/20/99 - 09/24/99 10/25/99 - 10/29/99 09/27/99 - 10/01/99 10/11/99 - 10/15/99 11/15/99 - 11/19/99
Location: University of California, San Diego	Dates: 09/20/99 - 09/23/99 11/01/99 - 11/04/99

### 502 Update for Construction Industry Outreach Trainers

Location: Eastern Michigan University-United Auto Workers	Dates: 10/05/99 - 10/07/99
Location: Georgia Technological Research Institute	Dates: 09/28/99 - 09/30/99
Location: Great Lakes OSHA Training Consortium (Cincinnati, OH)	Dates: 10/06/99 - 10/08/99
Location: Keene State College	Dates: 09/8/99 - 09/10/99 11/22/99 - 11/24/99
Location: Metropolitan Community Colleges— Business and Technology Center	Dates: 09/27/99 - 09/29/99 11/29/99 - 12/01/99
Location: National Resource Center for OSHA Training	Dates: 09/27/99 - 09/29/99
Location: National Safety Education Center (Hillside, IL)	Dates: 11/09/99 - 11/11/99
Location: Niagara County Community College	Dates: 10/06/99 - 10/08/99
Location: Red Rocks Community College-Trinidad State Junior College	Dates: 11/15/99 - 11/17/99
Location: Texas Engineering Extension Service (Houston, TX)	Dates: 11/08/99 - 11/10/99
Location: University of California, San Diego (Phoenix, AZ)	Dates: 10/06/99 - 10/08/99 11/01/99 - 11/03/99
Location: University of Washington	Dates: 09/15/99 - 09/17/99

### 503 Update for General Industry Outreach Trainers

Location: Georgia Technological Research Institute	Dates: 11/30/99 - 12/02/99
Location: Great Lakes OSHA Training Consortium (Cincinnati, OH)	Dates: 10/06/99 - 10/08/99



Location: Keene State College (Auburn, ME)	Dates: 11/17/99 - 11/19/99
Location: Metropolitan Community Colleges— Business and Technology Center	Dates: 10/04/99 - 10/06/99
Location: National Safety Education Center (Elgin, IL)	Dates: 10/19/99 - 10/21/99
Location: Niagara County Community College	Dates: 11/10/99 - 11/12/99
Location: Red Rocks Community College-Trinidad State Junior College	Dates: 11/17/99 - 11/19/99
Location: Texas Engineering Extension Service (Austin, TX)	Dates: 09/20/99 - 09/22/99 11/15/99 - 11/17/99
Location: University of California, San Diego	Dates: 10/11/99 - 10/13/99
Location: University of Washington	Dates: 09/20/99 - 09/22/99

#### 510 Occupational Safety and Health Standards for the Construction Industry

---

Location: Eastern Michigan University-United Auto Workers (Livonia, MI)	Dates: 11/08/99 - 11/11/99
Location: Georgia Technological Research Institute	Dates: 11/01/99 - 11/05/99
Location: Great Lakes OSHA Training Consortium	Dates: 11/30/99 - 12/03/99





Location: Keene State College	Dates: 10/25/99 - 10/29/99
Location: Metropolitan Community Colleges— Business and Technology Center	Dates: 09/20/99 - 09/23/99 11/15/99 - 11/18/99
Location: National Resource Center for OSHA Training (Silver Spring, MD)	Dates: 09/13/99 - 09/16/99 11/08/99 - 11/11/99
Location: National Safety Education Center (Hillside, IL)	Dates: 10/11/99 - 10/15/99
Location: Niagara County Community College	Dates: 10/12/99 - 10/15/99
Location: Red Rocks Community College-Trinidad State Junior College	Dates: 10/25/99 - 10/28/99
Location: Texas Engineering Extension Service	Dates: 10/18/99 - 10/21/99
Location: University of California, San Diego	Dates: 09/20/99 - 09/23/99 11/01/99 - 11/04/99
Location: University of Washington (Portland, OR)	Dates: 11/15/99 - 11/18/99

### 521 OSHA Guide to Industrial Hygiene

---

Location: Metropolitan Community Colleges— Business and Technology Center	Dates: 11/15/99 - 11/18/99
Location: National Safety Education Center (Hoffman Estates, IL)	Dates: 11/01/99 - 11/05/99
Location: Niagara County Community College	Dates: 09/27/99 - 09/30/99
Location: Texas Engineering Extension Service	Dates: 11/08/99 - 11/11/99
Location: University of California, San Diego	Dates: 09/27/99 - 09/30/99
Location: University of Washington	Dates: 10/11/99 - 10/14/99

### 600 Collateral Duty Course for Other Federal Agencies

---

Location: Keene State College	Dates: 09/27/99 - 10/01/99
Location: University of California, San Diego <b>JSHQ</b>	Dates: 10/25/99 - 10/28/99







# Construction Hazards and Fatalities Remain High

by Anne Crown-Cyr

Pick up your daily newspaper and you're sure to read about construction accidents and fatalities. *Milwaukee, July 14, 1999*: At Miller Park stadium, a crane collapsed killing three workers. *Washington, DC, July 15, 1999*: A construction worker fell 80 feet from a construction platform. Miraculously, he walked away with only minor injuries.<sup>1</sup> But whether or not an accident makes the news, construction workers have a 1 in 11 chance of being injured on the job and about a 1 in 7,000 chance of dying.<sup>2</sup>

Nonfatal accidents and injuries in construction have declined over the years, making them slightly lower than manufacturing



Berrien Zettler, Deputy Director,  
Directorate of Construction.

(9.5 total cases per 100 full-time employees versus 10.3 in 1997).<sup>3</sup> But in terms of fatalities, construction has been steadily high compared with general industry. For example, in 1997, construction had a fatality rate of 14.1 per 100,000 employees compared with general industry's 5 per 100,000. This represents about 20 percent of all fatalities in the private sector and about 7 percent of private sector employment.<sup>4</sup> In terms of fatalities, construction continues to be more hazardous than work in general industry. In addition, small companies employ only about 31 percent of construction workers, but incur almost 53 percent of the fatalities.<sup>5</sup>

<sup>1</sup> *Milwaukee Journal Sentinel*, July 16, 1999, at [www.jsonline.com/news/metro](http://www.jsonline.com/news/metro); and *The Washington Post*, July 16, 1999, at [www.washingtonpost.com](http://www.washingtonpost.com).

<sup>2</sup> Derived from U.S. Department of Labor, Bureau of Labor Statistics, *Survey of Occupational Injuries and Illnesses*, Table 2, 1997; and *Census of Fatal Occupational Injuries*, 1997, Table 3 and Table 4 at [www.bls.gov/oshhome.htm](http://www.bls.gov/oshhome.htm)

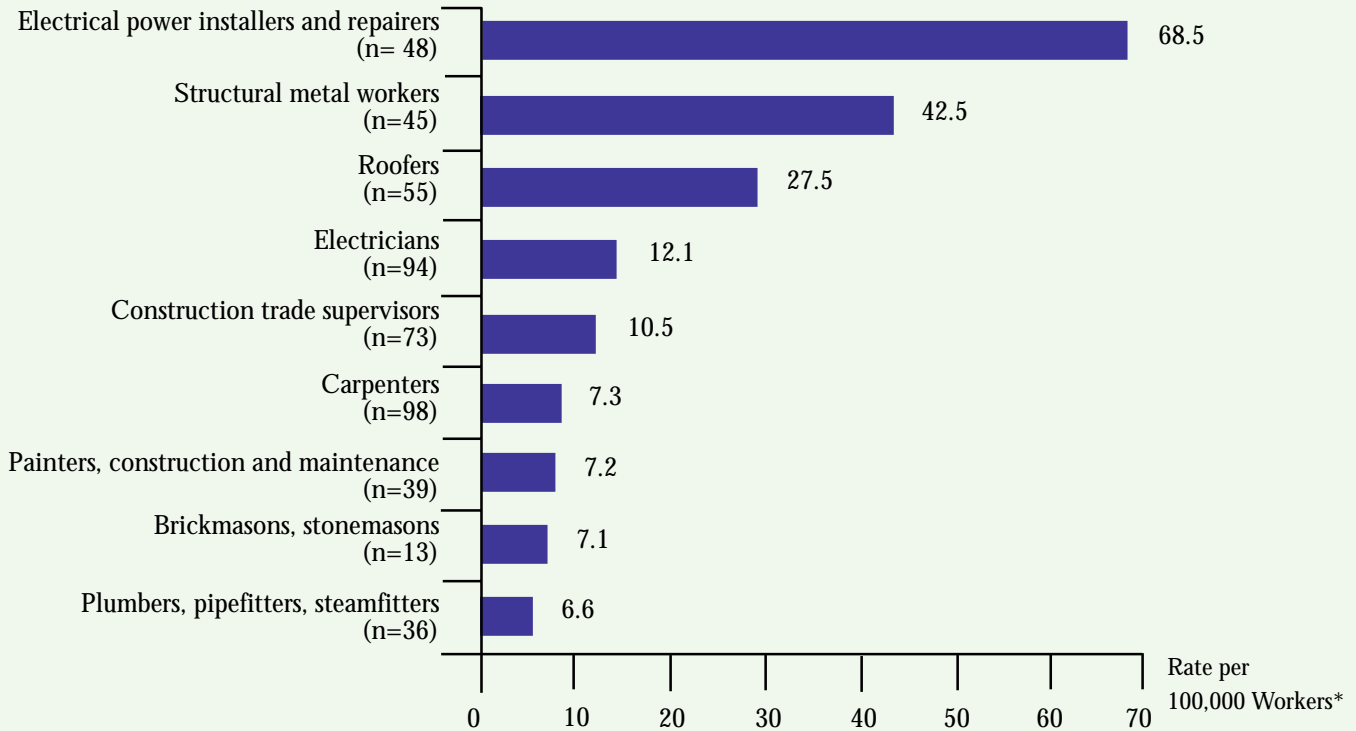
<sup>3</sup> *Ibid.*, Table 1, 1997. See "Nonfatal occupational injuries and illnesses—Industry counts and frequency rates," at [www.bls.gov/oshhome.htm](http://www.bls.gov/oshhome.htm).

<sup>4</sup> *Ibid.*; and *Census of Fatal Occupational Injuries*, 1997, Table 3 and Table 4 at [www.bls.gov/oshhome.htm](http://www.bls.gov/oshhome.htm).

<sup>5</sup> For this discussion, small employer means those with 1-19 employees. See U.S. Department of Commerce, Bureau of the Census, Economics and Statistics Administration, *County Business Patterns 1996* (Washington, DC: November 23, 1998), Table 1b, p. 6.

...construction workers have a 1 in 11 chance of being injured on the job and about a 1 in 7,000 chance of dying.

## Fatal Work Injury Rates for the Construction Trades, 1997



\* Rate=(Fatal work injuries/Employment) x 100,000 workers. Employment data extracted from the 1997 Current Population Survey (CPS). Source: US Department of Labor, Bureau of Labor Statistics, *Census of Fatal Occupational Injuries*, 1997.

In evaluating hazards at construction sites, OSHA identified the top four causes of fatalities: falls, being struck by equipment or machinery, electrocution, and caught-in between equipment, buildings, and materials.

To get more information on these problems, *JSHQ* went to OSHA's Construction Directorate. Deputy Director Berrien Zettler helped give some insights into construction hazards.

**Q. Why do you think the construction industry continues to be hazardous?**

**A.** There are a number of reasons why construction work is hazardous. Many factors likely contribute to construction hazards and fatalities. For example, making construction sites safe for workers can be complicated by the size or complexity of the job, level of safety

awareness, improper use or maintenance of equipment, logistical delays and project deadlines, transient labor force, and the qualifications and training of subcontractor employees.

Although it is not possible to accurately predict every fatality in construction, there are several potential hazards in the construction industry that we know lead to a high percentage of the construction-related deaths. You could have two separate jobsites doing the exact same work in the same area and one will have a fatality and the other won't. If an employer has an effective safety and health program that identifies and removes hazards such as those related to falls, electrocutions, and trenching and excavation, the employer is much less likely to have a fatal accident than one who does not. There are employers who



don't have an organized approach to safety, and who don't always insist that everything is done according to the best safety practices. There also seems to be a disproportionate number of fatalities among small employers.

**Q. What do you think accounts for the latter?**

A. In construction, these small employers do a lot of little pick-up jobs, making it difficult to reach them through conventional outreach. Also, their work force frequently changes from job to job, making safety training difficult. So, these are groups we need to focus on to offer assistance and to raise safety and health awareness.

**Q. Let's talk about the hazards. What are the most critical hazards related to construction work?**

A. In evaluating hazards at construction sites, OSHA identified the top four causes of fatalities: falls, being struck by equipment or machinery, electrocution, and caught-in or between (e.g., equipment, buildings, and materials).

If you look at all of construction, you will find that falls are the biggest cause of fatalities—a whopping 34 percent.<sup>6</sup> Next are electrocutions, representing about 13 percent.<sup>7</sup> Although struck-by fatalities are at the top of the list within highway construction, they are probably third or fourth in the overall rate. Struck-by means being hit by automobiles, trucks, or pieces of equipment. It also can mean being hit by something that falls off of a building and strikes a worker—such as a brick, a piece of

steel, or even a building collapse. So, there's a lot of variety of hazards in this category and it probably represents about 9 percent of the fatalities.<sup>8</sup> The fourth hazard, caught in or between, pertains mainly to trenches, but can involve equipment, such as cranes, belts, machinery parts, and buildings and represents about 8 percent of the job-related fatalities in construction.<sup>9</sup> For example, the super structure of a crane might swing around and pin a worker between it and a building.

**Q. How is OSHA focusing on these four major hazards?**

A. Well, we are combining enforcement, partnership, and outreach. We want to reduce fatalities by 15 percent—that's one of OSHA's goals.

<sup>8</sup> *Ibid.*

<sup>9</sup> *Ibid.*



<sup>6</sup> U.S. Department of Labor, Bureau of Labor Statistics, *National Census of Fatal Occupational Injuries, 1997*, "Job-related fatalities in private construction by selected characteristics, 1992-97."

<sup>7</sup> *Ibid.*

During inspections, we want to look for the four hazards, but we also are targeting the segments with the highest fatality rates. This is no easy task because construction sites are mobile and anything can cause the work to shut down on a given day. In terms of industries where we believe there are high hazards and fatalities, we are looking at highway construction, roofing, steel erection, and mechanical contract work, or trenching. Similarly, we are developing our partnerships in these areas to focus on their hazards.

**Q. How does OSHA look for these hazards during an inspection?**

**A.** When we go onto the site and there's no fatality, the first thing we do is sit down with the general contractor and find out whether he or she has implemented a comprehensive and effective safety and health program for that worksite.

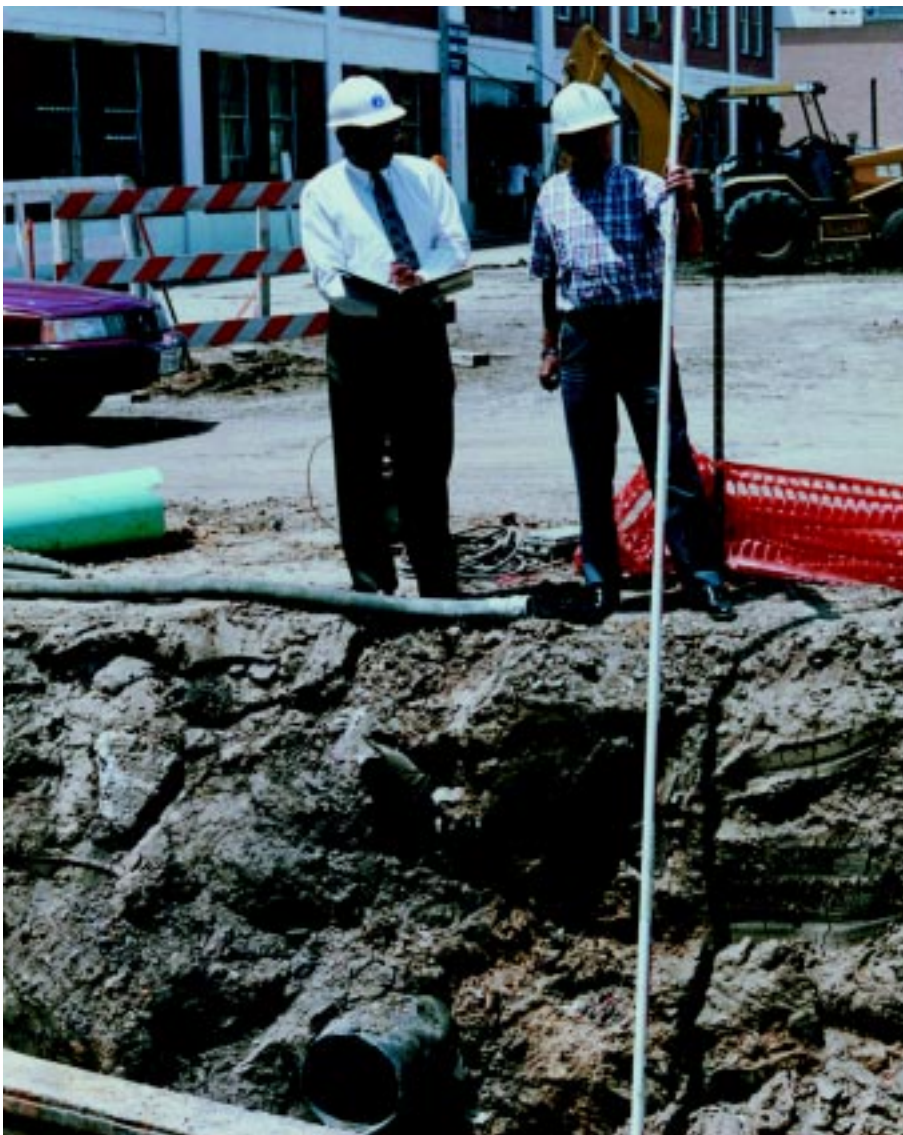
We use a checklist to go through the elements of such a program and what it entails. If the compliance officer believes there is an effective safety and health program at that site and that all of the subcontractors on the site are required to follow the same rules, then we'll do a "focused" safety and health inspection at that site. This means we look at the top four hazards to see what the employer is doing to control exposure to those hazards. If the compliance officer believes that the contractor has in place controls for those four hazards, that's the end of the inspection, and we go away.

**Q. What happens if the employer doesn't have an effective safety and health program?**

**A.** We then do a comprehensive inspection of the worksite. We also do a comprehensive inspection, not a "focused inspection," when a fatality is involved.

**Q. You mentioned partnership and outreach earlier. What is OSHA doing in this regard to help construction employers?**

**A.** We are working on a "partnership model" that would meet certain criteria for delivering special awareness programs. Right now, we have a roofers' program in Chicago and a CARE program in Florida, both of which support our



*Compliance officers Bill Burke (left) and Henry Slagle (right) evaluate trench construction and depth.*



# Construction Focused Inspection Guidelines

These guidelines help the compliance officer determine if the employer has an effective project plan to qualify for a *Focused Inspection*.

## Yes/No

- \_\_\_\_\_ **Project Safety and Health Coordination.** Are there procedures in place by the general contractor or other such entity to ensure that all employers provide adequate protection for their employees?
  - \_\_\_\_\_ Is there a **Designated Competent Person** responsible for implementing and monitoring the project safety and health plan who is capable of identifying existing and predictable hazards and has authority to take prompt corrective measures?
  - \_\_\_\_\_ **Project Safety and Health Program/Plan**<sup>10</sup> that complies with 1926 Subpart C<sup>11</sup> and addresses, based upon the size and complexity of the project, the following:
    - \_\_\_\_\_ Project Safety Analysis at initiation and at critical stages that describes the sequence, procedures, and responsible individuals for safe construction.
    - \_\_\_\_\_ Identification of work/activities requiring planning, design, inspection, or supervision by an engineer, competent person, or other professional.
    - \_\_\_\_\_ Evaluation/monitoring of subcontractors to determine conformance with the Project Plan. (The Project Plan may include, or be utilized by, subcontractors.)
    - \_\_\_\_\_ Supervisor and employee training according to the Project Plan including recognition, reporting and avoidance of hazards, and applicable standards.
  - \_\_\_\_\_ Procedures for controlling hazardous operations such as cranes, scaffolding, trenches, confined spaces, hot work, explosives, hazardous materials, leading edges, etc.
  - \_\_\_\_\_ Documentation of training, permits, hazard reports, inspections, uncorrected hazards, incidents, and near misses.
  - \_\_\_\_\_ Employee involvement in hazard analysis, prevention, avoidance, correction, and reporting.
  - \_\_\_\_\_ Project emergency response plan.
- The walkaround and interviews confirmed that the Plan has been implemented, including:
- \_\_\_\_\_ The four leading hazards are addressed: falls, struck by, electrical, and caught in or between.
  - \_\_\_\_\_ Hazards are identified and corrected with preventative measures instituted in a timely manner.
  - \_\_\_\_\_ Employees and supervisors are knowledgeable of the project safety and health plan, avoidance of hazards, applicable standards, and their rights and responsibilities.
  - \_\_\_\_\_ The project qualified for a focused inspection.

<sup>10</sup> For examples, see American National Standards Institute, *American National Standard Construction and Demolition Operations—Safety and Health Program Requirements for Multi-Employer Projects*, ANSI A10.33 (Chicago: National Safety Council, 1992), 21 pp.

<sup>11</sup> Title 29 Code of Federal Regulations, Part 1926—Safety and Health Regulations for Construction, “Subpart C—General Safety and Health Provisions.”



strategic goals of reducing injuries, illnesses, and fatalities by 15 percent in 5 years.

The goal of the CARE, or Construction Accident Reduction Emphasis, program is to reduce construction accidents and fatalities. The idea is to raise the level of awareness of Florida employers by partnering with them, organizations, and unions to provide training, information, and assistance. The program began in February and from March through July of this year, OSHA is offering six 10-hour construction safety courses through its consultation service program in Florida. We're using various methods—such as informational meetings, training, computer disks, advocacy groups, organizations, posters, pocket cards, the Internet, and the media—to get the word out about the program.

For the roofers' program in Chicago, we worked with the National Roofing Contractors' Association, United Union of Roofers, Waterproofers and Allied Workers, CNA Insurance Company, and

National Safety Council to encourage roofing contractors in the Chicago area to provide assistance, foster and recognize improved worker safety and health performance, and leverage training and mentoring opportunities across the industry. We wanted this partnership with industry, labor, and government to encourage safety and health in a high-hazard industry. Our goals were to improve safety and health in the roofing industry, foster cooperation among the partners—cooperation versus enforcement—and recognize those roofing contractors meeting the criteria for good safety and health programs.

**Q. Do you see OSHA doing more of this type of thing?**

**A.** Absolutely. We think that partnership and outreach are really effective ways to reach our constituencies, especially the smaller employers who might not otherwise get the information and assistance they need. As I mentioned earlier, the smaller employer has a significant number of



fatalities, so we want to raise their awareness to on-the-job hazards and ways to prevent them. I would say that our partnerships are including these employers. It's important that we reach out especially at the local level where we have opportunities for direct contact and hands-on assistance.

**Q. Do these smaller employers know where to go to get assistance?**

A. Some do. But that's why our outreach is so important. When we have special campaigns, meetings, and such we make sure that participants know about OSHA area offices, the consultation program, VPP,<sup>12</sup> and our training courses. We also plug our electronic products.

Although many small businesses may not have access to the Internet, the majority have computers. So, we also let them know about our CD-ROM, which has all of OSHA's standards and technical information, and our compliance advisor software.<sup>13</sup> In the near future, OSHA plans to have more regional small business forums to discuss construction safety and health issues.

**Q. What single piece of advice would you give construction employers to help them better protect their workers?**

A. I guess it would be more from a business standpoint. Basically, construction employers know what

to do first when building something. They know, for example, that you can't begin if you don't have all the materials onsite and your subcontractors scheduled to begin work at the correct time. They can't afford to have subcontractors standing around waiting for the next thing to happen. The same is true for safety and health. If you begin with an effective safety and health program, which includes commitment and participation of everyone, from management to workers, you can save time and money—actually, about \$4 for every dollar spent. Employers want to make sure that their work is on schedule

### FLORIDA CARE PROGRAM

In 1998, Florida construction companies with 25 or fewer employees experienced 54 percent of the construction fatalities. In companies with 26-100 employees, that percentage was 22 percent. Large companies accounted for the remaining 24 percent of these fatalities. Because 76 percent of the construction fatalities occurred in companies with 100 or fewer employees, OSHA determined the need for special outreach and training opportunities for these small employers.

OSHA developed a local program to address the problem, focusing on enforcement, partnership, and outreach. To bring awareness to Florida employers, the three Florida area offices are partnering with employers, organizations, and unions to provide training, information, and assistance to these

small employers. The effort entails holding informational meetings about the CARE program; offering training classes; providing products such as computer disks on compliance assistance, posters, pocket cards; distributing information via the Internet and the media; and partnering with advocacy groups, and other organizations to get the word out. Information will be available in Spanish as well. Spanish informational materials and posters will be available for non-English speaking advocacy groups to display so small contractors and employees will see them.

For more information on the CARE program, contact one of OSHA's Florida offices: Fort Lauderdale (954) 424-0242; Jacksonville (904) 232-2895; Tampa (813) 626-1177.

<sup>12</sup> Voluntary Protection Programs recognize employers who meet specific criteria for excellent safety and health programs.

<sup>13</sup> *OSHA Regulations, Documents, and Technical Information*. Available from the U.S. Government Printing Office, Superintendent of Documents. Order No. S/N 729-013-00000-5 at \$46 per year; \$17 per single copy. Phone: (202) 512-1800; fax: (202) 512-2250. For other products and information, visit OSHA's website at [www.osha.gov](http://www.osha.gov).

# Chicago Roofing Partnership

## Roofing Industry Partnership Program for Safety and Health (RIPPSH)

### Partners in the Program

- OSHA
- National Roofing Contractors Association (NRCA)
- The United Union of Roofers, Waterproofers and Allied Workers (UURWAW)
- CNA Insurance Company
- The National Safety Council (NSC).

### Overview

The program, primarily developed and administered by NRCA, has a steering committee of stakeholders with each member entitled to one vote. Their duties include reviewing applications and monitoring and assessing the program.

OSHA serves as an advisor and provides assistance and oversight in accordance with the partnership agreement in:

- Accepting the contractor performance criteria
- Accepting the program performance measurements
- Accepting criteria used to qualify individuals to perform onsite visits
- Coordinating program oversight through periodic program audits and quality control visits.

### Program Elements and Contractor Recognition

To achieve "Premier Status," a contractor must meet established criteria outlined by the steering committee. Consideration includes:

- A good written safety and health program
- Compliance with OSHA standards
- Evidence of in-place training programs
- A good safety record
- Evidence of program implementation on the jobsite.

A contractor may be in one of three status levels.

<b>Level One</b> (The lowest level of recognition.)	<b>Contractors must have an experience modification rate, EMR,<sup>14</sup> below .95.</b> At this level, OSHA recognizes contractors by <ul style="list-style-type: none"><li>• Guaranteed <i>Focused Inspections</i> and</li><li>• No penalties for non-serious violations.</li></ul>
<b>Level Two</b>	<b>Contractors must have an EMR of .85</b> In addition to the same recognition under Level One: <ul style="list-style-type: none"><li>• Contractors are not subject to Programmed Inspection nor subject to inspection on multi-employer sites provided that serious hazards are not present.</li></ul>
<b>Level Three</b>	<b>Contractors must have an EMR of .75</b> In addition to Level One and Level Two recognition <ul style="list-style-type: none"><li>• OSHA gives reductions in penalties.</li></ul>

For more information about this program, contact OSHA's Region V Office, 230 South Dearborn Street, Room 3244, Chicago, IL 60604; (312) 353-2220.

<sup>14</sup> Experience modification rate pertains to the rate of workers' compensation paid per employee.



and that they make money on the project. A safe worksite can add to that profit margin.

**Q. So, really you're saying that effective safety and health can affect the bottom line?**

**A.** Yes. An effective safety and health program is really like preventive medicine. You're taking precautions up front instead of using a band-aid approach after the fact. Over the long term, you save time and money. You have fewer workers' compensation claims, and lost workdays because you have fewer injuries and illnesses. Ideally, there is a commitment throughout the organization—bottom down and top up—to make safety and health a priority. This means identifying

and correcting hazards, training employees in recognizing and preventing hazards. That's what we try to do in all of our assistance programs such as consultation, VPP, SHARP,<sup>15</sup> and others. Most businesses want the same thing—to make a profit—and accidents cut into that profit. **JSHQ**

*Cyr, editor of **Job Safety & Health Quarterly**, is a supervisory public affairs specialist in OSHA's Office of Public Affairs, Washington, DC.*

---

<sup>15</sup> Safety and Health Achievement Recognition Program—part of OSHA's Consultation Program that recognizes employers who demonstrate exemplary achievements in workplace safety and health by meeting certain criteria following a consultation visit. See also **Consultation** on OSHA's website at [www.osha.gov](http://www.osha.gov).

“We think that partnering and outreach are really effective ways to reach our constituencies, especially the smaller employers who might not otherwise get the information and assistance they need.”

—Berrien Zettler  
Deputy Director, Directorate of Construction

---

# Preventing Job Hazards through Training and Education

The third in a series of articles on how state safety and health programs protect American workers. Adapted from the recent *Grassroots Worker Protection*, the 1999 annual report of the Occupational Safety and Health State Plan Association (OSHSPA).



*Logger trims off side branches of felled trees on mountain top in the State of Washington.*



**T**raining and education continue to be a fundamental part of effective outreach—a way to help employers and employees learn about and improve workplace safety and health. According to Steve Cant, OSHSPA Chair, “In reaching out to our constituents—at both the federal and state levels—we want them to come away with a better way of working and thinking about safety and health. We want them to apply the lessons learned and help reduce their injuries and illnesses. Really, the bottom line is that we want workers to go home safe at the end of the day.”

The 25 states and territories operating state plan programs share a mission with the federal Occupational Safety and Health Administration (OSHA)—a safe and healthful workplace for all American workers through prevention of on-the-job injuries, illnesses, and fatalities. State plans cover 40 percent of the nation’s work force and must be “at least as effective” as federal OSHA, including the job safety and health standards that employers must meet.

State plans must include coverage for public sector (state and local government) employees and provide the opportunity to promulgate unique standards or to develop innovative programs specific to the hazards of each state’s workplaces. State occupational safety and health programs include enforcement inspections and free consultation, training, and education services to encourage employers and employees to use safe and healthful work practices. OSHA approves and monitors state plans and provides up to 50 percent of their operating costs.

In fiscal year 1998, states conducted about 12,000 training programs for more than a quarter of a million employers and employees on topics such as construction, logging, ergonomics, confined spaces, workplace violence, and worksite-specific accident prevention programs. State programs leverage their training resources by partnering with business, labor, and educational institutions, and by using innovative video and Internet technologies. The following paragraphs highlight some current state program training and education efforts.

**Oregon’s OR-OSHA**, the first state program in the nation to provide interactive occupational safety and health training via the Internet, offers core and advanced workshops, including ones on workplace violence and ergonomics, through its website. Oregon residents can take the classes electronically, respond to questions, receive personal attention from a trainer, receive a certificate of completion, and earn continuing education credits through an Oregon community college. (See <http://www.cbs.state.or.us/external/osha/educate/training/pages/courses.htm>.)

The Oregon construction industry and OR-OSHA are working together to reduce construction injuries and fatalities. The Joint Emphasis Program is a cooperative effort between management, labor, and government to design and implement focused joint training sessions. This effort will look at hazards, design a curriculum, provide training to safety personnel, foremen, supervisors and OR-OSHA staff, and communicate problems and solutions to the industry and public through outreach

Training and education continue to be a fundamental part of effective outreach—a way to help employers and employees learn about and improve workplace safety and health.



*Trainees learn first hand how to lay the foundation for a single-family dwelling.*

efforts. Initial training will target fall hazards in roofing, scaffolding, elevated areas, and excavations.

The **State of Washington** recently placed its first occupational safety training video on the Internet. *Roofing Safety*, the first in a series designed for the residential construction industry, promotes safety practices that can help prevent injuries among roofers. The video, developed by WISHA<sup>1</sup> safety professionals in partnership with business and labor representatives and a construction advisory committee, demonstrates safe roofing practices to employers and employees with an Internet connection on their computer. (See the video at <http://www.wa.gov/lni/wisha/videos/>.)

Business and labor organizations in Washington requested legislation to appropriate some of the state's workers' compensation medical aid reserve funds in excess

of actuarial needs to establish an occupational safety and health impact grant program. Approved by the 1999 Washington State Legislature, the program will be administered by the Department of Labor and Industries in consultation with business and labor representatives. Funds of \$5 million are available for the first biennium, with \$5 million for each successive year.

The grants will help prevent injuries and illnesses, save lives, and educate Washington employers and employees about workplace hazards and safe work practices. The program should particularly benefit small businesses that may lack the injury and illness prevention resources of larger companies. Using a competitive application process, grants can be awarded to trade and business associations, employers, employee groups or organizations, and labor unions. Applicants can form partnerships with educational institutions and other organizations.

<sup>1</sup> The *Washington Industrial Safety and Health Act* authorized the Washington State Department of Labor and Industries' safety and health program and services.





commitment, and management as well as employees must be willing to participate fully. Kentucky's Division of Education and Training assigns a team of safety and health consultants to program participants, who receive top priority over all other training service requests. Once employers fulfill the requirements for the SPP, they can apply for the state's Voluntary Protection Partnership (VPP).<sup>2</sup>

Another customer-oriented cooperative effort of the Associated General Contractors of Kentucky and the Kentucky Occupational Safety and Health Division of Education and Training offers free job safety and health training to construction worksites in a training van. Fully equipped with

audiovisual equipment, the mobile classroom makes training accessible to more contractors and their employees while drastically reducing down time at jobsites.

**Maryland** offers training on three readily preventable causes of fatalities common to the construction industry—trenching, electrical, and fall hazards. This Fatality Prevention Program trains public sector inspectors, increasing the effectiveness of construction inspections. The program also benefits private and public sector employers by teaching them to identify and prevent some of the greatest hazards in their industry.

**Minnesota** helps meet the needs of the high-hazard construction industry by holding bimonthly training breakfast seminars. These construction “breakfasts” are very popular, with an average of 125 participants including construction employers, employees, and union representatives. Discussion at

<sup>2</sup>Like Federal OSHA's Voluntary Protection Programs, the state VPP recognizes companies whose managers and employees are working together to build exemplary, comprehensive safety and health programs with proven outstanding performance.

Grant categories include:

- Education and training;
- Technical innovation to develop engineering controls or other technical solutions to injury and illness problems;
- Best practices for the application of hazard control; and
- Innovative statewide programs to address safety and health priorities established by WISHA's statutory business and labor advisory committee.

A new training endeavor in **Kentucky**—The Safety Partnership Program (SPP)—offers long-term assistance to smaller employers with a history of high injury and illness rates and high workers' compensation costs. The SPP helps employers develop a proactive approach to safety and health management, thereby improving production, increasing employee morale, and significantly reducing workers' compensation costs. Employers must make a 3-year

“Really, the bottom line is that we want workers to go home safe at the end of the day.”

—Steve Cant  
OSHSPA Chair

these sessions usually includes an analysis of recent construction accidents, new standards, workers' compensation, and other safety and health topics pertinent to the construction industry.

Virginia's Consultation Services Program developed and produced two training videos with a grant from OSHA. One video, *Getting Started with Safety*, outlines the steps necessary to begin a safety program and the benefits of having one. The second video, *Common Safety Problems*, describes five safety problems common to most small businesses. Both videos help small businesses establish effective safety programs. These materials also are available for other state consultation programs to customize for their own use.

To combat the rising number of injuries and fatalities among loggers, Virginia also developed a voluntary compliance program in cooperation with the Department of Forestry, Virginia Tech School of Forestry, and the Virginia Forestry Association, providing safety and health training at the logging worksite. Instructors review accident prevention information including safety checklists, a safety manual, and lists of logging injuries, with the loggers. The training partnership also conducts group training sessions for loggers and their families.

In North Carolina, when logging-related fatalities drastically increased, the state initiated a training program for industry groups that took the message

of safety into the field where tree felling activity was actually taking place. This effort dramatically reduced the number of fatalities related to tree felling. North Carolina also established a local training network through the community college system using local safety professionals to teach a variety of safety topics.

Michigan is piloting ergonomics training programs throughout the state. These programs are conducted in cooperation with private sector professionals, drawing on concepts from the American National Standards Institute (ANSI) recommendations, and building on initiatives by OSHA and NIOSH.<sup>3</sup> In September 1997, Michigan completed a training package on "Elements of Ergonomics Programs," adapted from the NIOSH publication of the same name, 97-117 (<http://www.cdc.gov/niosh/ephome2.html>). It covers recognition of work-related musculoskeletal disorders, how to initiate ergonomic programs, building in-house expertise, gathering and examining evidence of problems, developing controls, and health care management.

Wyoming developed programs designed to meet the safety training needs of students and of specific types of employees. The *Three-Day Collateral Duty Health and Safety Program* is for personnel who have safety duties in addition to their primary duties. The *Management Safety Seminar* helps corporate officers and owners of businesses understand their responsibility to provide employees with a safe workplace and to develop and manage their company's safety and health program. The *Construction Safety Program* assists

<sup>3</sup> National Institute for Occupational Safety and Health.

In fiscal year 1998, states conducted about 12,000 training programs for more than a quarter of a million employers and employees on topics such as construction, logging, ergonomics, confined spaces, workplace violence, and worksite-specific accident prevention programs.





Student checks ergonomics equipment used to monitor carpenter's work tasks.

foremen, superintendents, and safety personnel, and the *Industrial Technology Safety Training* is for students from the junior high school level through the community college level to increase their job safety and health awareness for the future.

Because the demand for training in employer workplaces is so high, **Puerto Rico** is delivering training and conference sessions open to general audiences in different towns on the island. Puerto Rico has been successful in reaching and benefiting a higher number of employers, employees, students,

and the general public by publishing information on the sessions in the local newspaper.

**New York's** public sector state program, recognizing that many public employers need help complying with regulations that require a written program, developed model programs to help employers comply with the bloodborne pathogens and permit-required confined space standards.

**Iowa's** state plan—IOSH<sup>4</sup>—has worked closely with the OSHA Training Institute in Des Plaines, IL, a local community college, and the international AFSCME<sup>5</sup> to

<sup>4</sup> IOWA Occupational Safety and Health.

<sup>5</sup> American Federation of State, County and Municipal Employees.

provide nationwide training on such topics as confined space entry and lockout/tagout via their distance-learning Interactive Communication Network. In addition, IOSH staff received training on electrical hazards through a pilot by the OSHA Training Institute via the same network.

All of these innovative and collaborative programs and training methods developed by state occupational safety and health programs will continue to help reduce workplace injuries, illnesses, and fatalities through increased awareness and enhanced skills. Hazard and accident prevention through training and education is critical to achieving the goal of safe and healthful workplaces. **JSHQ**

Adapted, with permission, from the new annual OSHSPA report: *Grassroots Worker Protection—How State Programs Help to Ensure Safe and Healthful Workplaces, 1999*, produced by the Washington State Department of Labor and Industries' WISHA Services Division under the direction of Steve Cant, CIH, OSHSPA Chair. Copies of the full report are available online at WISHA's website at [www.wa.gov/lni/wisha/](http://www.wa.gov/lni/wisha/) and through links and under *State Plan* on OSHA's website at [www.osha.gov](http://www.osha.gov).

The editors of *Job Safety & Health Quarterly* wish to thank Janet Kenney, WISHA management analyst and editor of the report, for her assistance in preparing this article.



## Minnesota OSHA's *LogSafe* Program Takes Root

by James Honerman

**S**ince the days of felling trees with axes and saws, logging has had its inherent risks. The uneven terrain, unpredictable weather, insects, and falling debris have long made the forest a changing and challenging work environment. Newer hazards—such as working with large mechanized equipment, increased noise levels, and faster production rates—continue to make logging a high-hazard industry. Recent U.S. Bureau of Labor Statistics data show logging replacing fishing as the most dangerous occupation.

To reverse this trend and reduce these workplace hazards, federal OSHA identified logging as one of the high-hazard industries it will target in a 5-year strategic plan to

reduce injury and illness rates by 15 percent by September 2002.

To achieve this goal, OSHA developed enforcement, consultation, and specialized outreach training for the logging industry. It will be a challenge, however, to get the safety message out to smaller logging operations.

“Two-thirds of all logging employers have fewer than 10 employees, so OSHA has a tough time reaching them,” says Paul Cyr, OSHA Region I, technical leader and logging expert. “Many of the loggers would prefer to keep OSHA at arms length, so we’re planning experimental programs to provide outreach and training for compliance officers. We’ll also work with other system stakehold-

ers in a broad-based effort to reduce the injuries and fatalities,” he adds.

The Minnesota Department of Labor and Industry operates an OSHA-approved state plan and has developed its own 5-year state strategic plan. In addition to participating in efforts to meet the state’s strategic goals, Minnesota OSHA Consultation<sup>1</sup> will continue a special emphasis on logger safety training and outreach through its *LogSafe* Program—a safety and education program for Minnesota loggers.

<sup>1</sup> Consultation programs provide free services to employers who request help in identifying and correcting specific hazards, who want to improve their safety and health programs, and/or who need further assistance in training and education. For more information on Minnesota OSHA Consultation, visit their website at <http://www.doli.state.mn.us/wsc.html>.



Since the inception of the program in July 1991, *LogSafe* has slowly established a working relationship between Minnesota OSHA and loggers. In 1995, the logging and mill industries rallied to continue the *LogSafe* program, which has now taken hold in the logging community.

### Loggers' Fund Bill

"A lot of windshield time" is how Ed LaFavor describes driving 900 miles a week to conduct logger safety seminars and provide OSHA Consultation visits to logging operations around Minnesota. As the Coordinator for Minnesota OSHA Consultation's *LogSafe* Program, and as a logger himself, LaFavor enjoys working with the logging industry.

"The number of safety training requests I receive keeps my schedule full, but I enjoy it," LaFavor notes. "A lot of my training involves common sense—offering friendly reminders about the little things that loggers already know, but may have forgotten, or ignore. It's my hope that these reminders may prevent a bad situation from becoming considerably worse."

In the late 1980s, Minnesota's logging employers were seeing their situations worsen as workers' compensation premiums continued to rise. In 1990, at the request of the logging industry, the Minnesota Legislature passed the *Targeted Industries Fund for Loggers*. The purpose of the "loggers' fund bill" was to offset high workers' compensation premiums, unsafe working conditions, and high accident rates in logging and associated industries.

"The workers' compensation rates were so high at the time that nobody could go into business and make a living," says Bruce Barker, Assistant Vice President of the

### LogSafe Course Description

- Introduction and updates— covers changes in workers' compensation and OSHA rules and statutes.
- First-aid/CPR certification—an all-day session that meets OSHA standards. Also offers a CPR re-certification class which is required training for all loggers biannually.
- Chainsaw safety—an all-day course about chainsaw safety, personal protective equipment and proper felling techniques.
- Mechanized safety—an all-day course emphasizing shop safety, equipment transport, and overhead power line safety.
- AWAIR training—a four-hour class for developing and implementing an effective AWAIR (A Workplace Accident and Injury Reduction) program, as required by Minnesota Statutes passed by the Minnesota Legislature in 1991.

Minnesota Timber Producers Association, a group of loggers and smaller saw mills. "The fact that the sawmills agreed to this program was a real coup. They were willing to provide the revenue to reduce workers' compensation rates."

The loggers' fund assesses wood mills 30 cents for every cord of wood they purchase or process annually above 5,000 cords. Because the first 5,000 cords of wood are not assessed, the loggers' fund does not burden the smaller operations that don't consume as much wood.

Of the money assessed, the Minnesota Department of Labor and Industry receives \$125,000 to fund and administer the *LogSafe* Program. This appropriation covers all of the training materials and seminar costs, including door prizes, lunch, earplugs, and safety glasses for all participants; the *LogSafe* administrator's salary, office space and vehicle; a biannual *LogSafe* newsletter that is sent to logging employers and mills; and any other consultation service provided to the logging community.



*Instructor Ed LaFavor conducts logging seminar.*

The remaining logger's fund money is used to emphasize safety and thereby lower workers' compensation costs. It goes back to the logging employers as a rebate on their workers' compensation premiums if they and their employees attend a free, 8-hour *LogSafe* seminar every year.

Logging employers must maintain current workers' compensation liability insurance coverage throughout the year before they can receive their portion of the designated rebates. All loggers who show proof of seminar attendance are entitled to a workers' compensation premium rebate.

During the first year of the program, 112 businesses received rebates. Today, an average of 140 logging firms receive premium rebates annually. For fiscal year 1998, each logging company received an 11-cent rebate for every dollar of payroll it reported.

"Christmas in June is how many logging employers refer to their rebate," LaFavor points out. "It gives their business a nice boost during spring's slower months."

To get the program up and running in July 1991, the Minnesota Department of Labor and Industry contracted with a northern

Minnesota technical college to teach courses about logging safety. State laws for mandatory workers' compensation coverage and the fear of OSHA penalties, however, made many loggers uneasy participants in a program that was administered by a state regulatory agency.

Despite its early struggles, the program grew in attendance and improved its training by using feedback from seminar evaluations and by hiring *LogSafe* coordinators who had backgrounds with logging.

"The logging industry in Minnesota has been adamant about making sure the program coordinator would be able to understand what a logger faces each day," says LaFavor. "When I was hired to be the coordinator, it was because I had walked the same path as many of the loggers and had the same experiences."

To help him provide better OSHA consultation, LaFavor attended an OSHA Training Institute 2-week workshop on logging and sawmill safety in June. He also had 6 months of Minnesota OSHA Compliance investigator training for new investigators.

James Collins, Director of Minnesota OSHA Consultation, says, "The OSHA training and his background in logging make him a good fit for the program. They enable Ed to teach seminars not only about the benefits of having workers' compensation insurance, but also about the technical safety knowledge that will help prevent loggers' exposure to injury or death. Since Ed has received training in OSHA Compliance, he can also give the logging industry insight about what OSHA would do if they showed up at a worksite."



Since the inception of the program in July 1991, *LogSafe* has slowly established a working relationship between Minnesota OSHA and loggers.

“It gets their attention. The room gets stone quiet,” LaFavor adds. “They realize that people are dying out there.”

The seminars include an all-day CPR and first-aid certification class, an all-day mechanized safety class, an all-day chainsaw safety refresher course, and a half-day class on ways to develop a safety and health program for workers called AWAIR (A Workplace Accident and Injury Reduction Program).

A *LogSafe* Advisory Panel meets twice a year to review all seminar topics. The panel, which is made up of independent loggers, mill representatives, insurance representatives, and logging association members, also receives an overview of the program, including its finances and future safety training ideas.

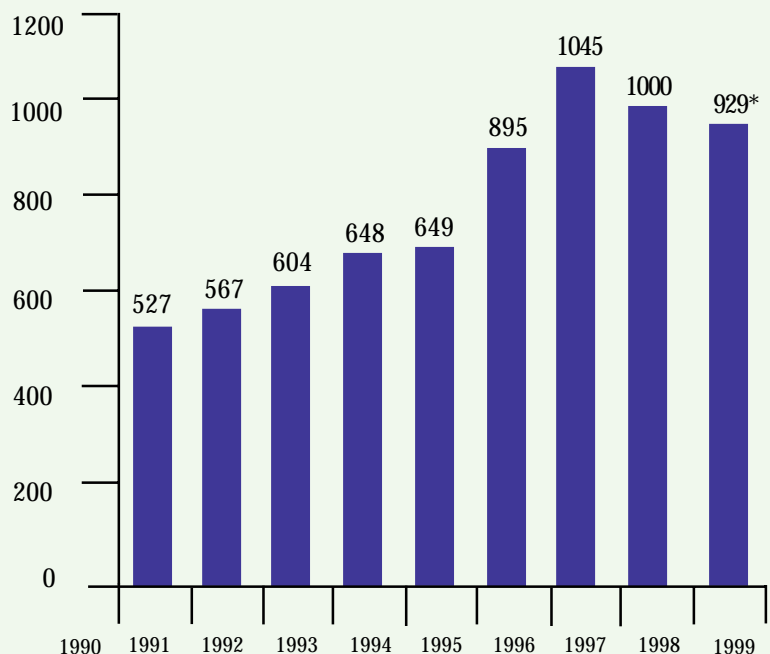
### Logger Safety Seminars

Of the 1,500 estimated full-time loggers in Minnesota, approximately 1,050 attend *LogSafe* seminars annually. The seminars are free and available in various locations, usually within 75 miles of a logger’s home. Most sessions occur in March and April when loggers are less active due to the thawing ground. It costs the state about \$34 for each logger to attend the program, which includes meals, meeting room charges, instructor fees, and handout materials.

“In the spring, *LogSafe* trains the majority of loggers in 14 training seminars,” LaFavor notes. “We offer seven or eight fall seminars in October as make-up sessions for loggers who missed them in the spring and for new hires.”

All seminars begin with a half-hour update about changes in workers’ compensation and OSHA rules and statutes. LaFavor also uses this half-hour to focus the loggers’ attention on recent fatalities, near-miss accidents, and simple mistakes that get people injured or killed.

Number of Minnesota Loggers<sup>1</sup> Attending *LogSafe* Seminars, 1991-1999



<sup>1</sup> Represents only those loggers covered by workers’ compensation.

\* 1999 number includes only Spring *LogSafe* attendees.

Source: Minnesota Department of Labor and Industry, OSHA Consultation, June 21, 1999.



*Hands-on experience helps seminar participants focus on safety in logging.*

The hardest part for LaFavor is providing new seminar topics without a lot of repetition. “Every year, I try to change and keep rotating topics,” LaFavor stresses. “It’s hard to make chainsaw safety classes exciting for the yearly class goers. However, with more mechanization taking place in the logging industry, loggers use chainsaws less and can get rusty in their safety habits.”

### **Diminishing Fears of OSHA**

During the past few years, LaFavor also has conducted about 45 logging consultations a year to address safety concerns and to help employers develop safety and health programs. These onsite visits have shown the logging community that OSHA is interested in more than just fines.

“After the first dozen or so consultations, the loggers realized I wasn’t out there to penalize, but to help point out hazards that needed to be addressed,” LaFavor points out. “They also realized that OSHA Compliance was not going to do a follow-up inspection just because I did a consultation.”

The concern about future compliance inspections was a recurring theme, so the Minnesota program created a video to show loggers who attend *LogSafe* what would happen during a compliance inspection.

The video features a situation with a logging employer and the process of an OSHA scheduled investigation. A compliance investigator, “George OSHA,” shows up at logging employer, “Paul Grove’s” to do a scheduled investigation. The video details the OSHA inspector’s opening conference with Grove, discussing safety and health training and programs. The inspector also gives Grove feedback about the positives and negatives of his shop safety. After the shop inspection, the OSHA investigator goes out to a logging site and interviews one of Grove’s employees about his training and inspects the logging equipment for potential hazards. The investigator returns to Grove’s shop to discuss any apparent violations, abatement methods, time lines for abatement, and other services OSHA offers.

“When loggers view the video, they really enjoy it. It gives them an idea of what we mean by acceptable and not acceptable, all the way around,” LaFavor believes. “We receive a lot of positive feedback. Even the owners who are exempt from OSHA inspections like it.”

Besides helping out with special projects like the video, OSHA safety consultants like Tom Vosberg help teach portions of the logging seminar. During the time Vosberg has worked with *LogSafe*, he has noticed a major change in the attitude of the loggers.

“Three years ago, I would give my presentation to the loggers and wouldn’t get any feedback. After I was done, the loggers would just get

Of the 1,500 estimated full-time loggers in Minnesota, approximately 1,050 attend *LogSafe* seminars annually.



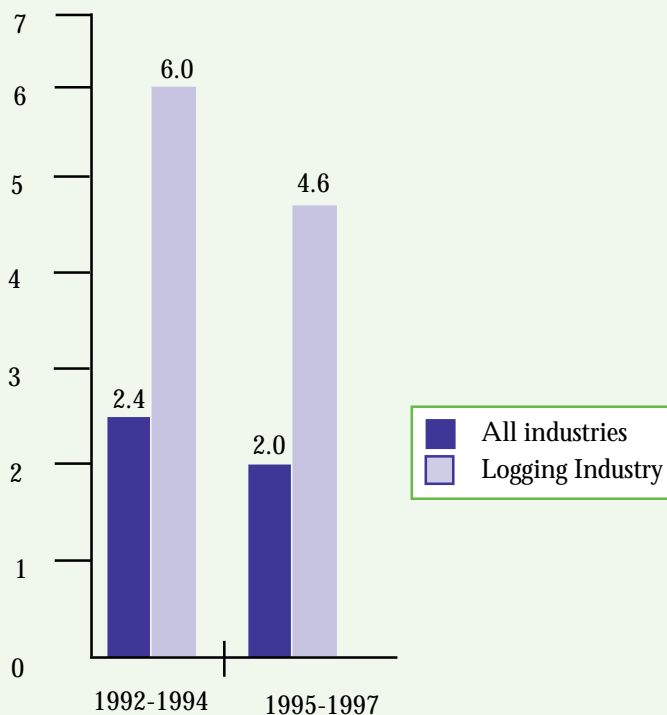
up and leave,” Vosberg remembers. “Now, when I show my slide presentation on OSHA safety hazards, the loggers will speak up and identify many of the hazards. I also hear them talking to each other about safety in their shops.”

In the early years of the program, Minnesota OSHA Consultation gave away door prizes such as chainsaws, hard hats, and other personal protective gear to entice loggers to attend the seminars. Since 1993, they’ve had a better incentive for loggers: Matching grant money for new safety equipment. Today, this Safety Grants Program offers all small employers in high-hazard industries assistance with the cost of abatement projects that reduce the safety and health risks in the workplace. It matches the employer’s contribution dollar-for-dollar, up to \$10,000 per project. The grant money comes from late-payment fines levied against Minnesota workers’ compensation insurers.

To qualify for the safety grant, employers must be covered by workers’ compensation insurance or be self-insured. A qualified person must conduct a safety survey of the worksite and identify the hazards. A qualified person could be a safety or health consultant, an insurance loss-control inspector, or a private consultant. The survey must result in specific recommendations, such as providing new equipment, to abate the hazards.

Eligible loggers can apply for a grant to help them abate the hazards found during the safety survey, using the recommendations as the basis for their request. They can use the grant to purchase items such as feller-bunchers, delimiters, fire extinguishers, or personal protective gear.

Average Incidence of Paid Indemnity Claims in Minnesota, Logging vs. All Industries<sup>1</sup>



<sup>1</sup> The incidence rate is the number of paid claims per year per 100 full-time-equivalent workers. Includes injuries and illnesses. The number of paid indemnity claims (in the numerator of the incidence rate) is developed (using observed historical rates of claim development) to represent what the number will be when all claims are complete.

Source: Minnesota Department of Labor and Industry claims database, Minnesota Department of Economic Security (employment data), and other sources.

In the past few years, Minnesota OSHA Consultation has seen 19 logging operations apply for and receive safety grants for new equipment. The state contribution for these projects totaled \$176,597. Employer contributions totaled \$844,607. “What we are seeing in Minnesota is a cultural change. OSHA is no longer viewed just as a bad word or as an agency that will take-away profits through penalties,” Collins emphasizes. “Now OSHA is viewed as providing assistance, especially in the area of our Safety Grants Program.”

Pure Premium Rates in the Minnesota Workers' Compensation Voluntary Market for Class 2702— Logging and Lumbering, 1990-1999<sup>1</sup>



<sup>1</sup> Pure premium rates represent expected indemnity and medical losses per \$100 of covered payroll. They are determined annually by the Minnesota Workers' Compensation Insurers Association. They are the starting point for rate-setting by individual insurance companies in the voluntary market. A 1995 legislative provision expanded payroll coverage to include paid vacation, holiday, and sick leave. The estimated 10-percent payroll expansion in 1996 caused an estimated 10-percent rate decrease in that year, separate from other changes attributable to cost factors. Therefore, the rates for 1990-1995 have been adjusted downward by 10 percent to make them comparable to those for 1996-1999.

Source: Minnesota Department of Labor and Industry, Research and Statistics, June 21, 1999.

And for logging operations that have seen their profit margins get smaller, getting a matching grant for new safety equipment can help ensure there will be fewer injuries and less business costs. "Many of these mechanized machines cost thousands of dollars," LaFavor points out. "This grant money can help make sure that a logger could break even or have a profit at the end of the year."

### Measuring LogSafe's Success

It is difficult to measure LogSafe's impact, although the program appears to be successful in driving down the incidence and expense of logging accidents. For example, Minnesota's average annual number of paid indemnity claims per 100 full-time-equivalent workers has fallen from 2.4 claims during 1992-1994, to 2.0 claims during 1995-1997. The average annual number of claims for the logging industry in Minnesota has dropped from an average of 36 claims in 1992-1994, to 30 claims during 1995-1997.

Lower incidence rates also can be attributed to safer machinery and to less personal contact with the timber being harvested overall. These declining incidence rates are part of a nationwide trend in logging, as more safety training is being made available and as the industry becomes more mechanized.

Success also can be measured by looking at the pure premium rates for the logging industry. Pure premium rates are a measure of expected losses (indemnity and medical costs) per \$100 of a covered payroll. The state rating bureau derives these costs from insurance company data.



Since 1990, pure premium rates have dropped from a high of \$29.54 per \$100 of covered payroll to an all-time low of \$19.40.

LogSafe's impact, however, can only go so far in regard to fatalities. Four Minnesota loggers died in 1998. All were sole proprietors. This year, two employees have been killed. "It's hard to pinpoint exactly why fatalities increased, but with the industry's bottom line getting thinner and its pay based on how much wood gets shipped, safety can take a back seat," LaFavor says. "The fatalities involved different activities, but all were avoidable mistakes—like someone not setting the parking brake and getting run over."

The increase in fatalities only reinforces the need to maintain a high level of safety awareness in the logging community. LogSafe's interaction with the loggers through seminars and consultations has been an effective way to communicate that message. "I've been quite impressed to see that Minnesota has a program that deals specifically with logging," Cyr says. "I've learned over time that to reach an industry as independent as the loggers, you have to get out and work with them. Getting out into the field, like Minnesota is doing now, is getting results," he adds. **JSHQ**

*Honerman is Communications  
Director for the Minnesota  
Department of Labor and Industry  
in St. Paul, MN.*

## *Opening Doors to Ability*

The American challenge for the 21st century is to become a nation in which all citizens have the opportunity for full employment. The ability of a diverse work force provides the framework to meet this challenge. Persons with disabilities want to be a vital component of the diverse work force.

We must not overlook the abilities of the 54 million Americans with disabilities. By "opening doors to ability," employers gain the skills and talents of persons with disabilities.

For more information, contact the President's Committee on Employment of People with Disabilities, 1331 F Street, N.W., Washington, DC 20004-1107, or visit their website at [www.pcepd.gov](http://www.pcepd.gov).



# Mammograms

Not just once, but for a lifetime



**T**he National Cancer Institute has free booklets about breast cancer screening. For answers to your questions about cancer and to order these publications, call NCI's Cancer Information Service at 1-800-4-CANCER (1-800-422-6237). Persons with TTY equipment, dial 1-800-332-8615.

Visit NCI's website for the patients, the public, and the mass media at <http://rex.nci.nih.gov> or NCI's main website at <http://www.nci.nih.gov>



## TOOLBOX

### Fall Protection—Holes

#### 1926.501 (b) (4) (i) through (b) (4) (iii)

Rank in Frequency Cited #20

According to OSHA regulations, a “hole” is a gap or void 2 inches (5.1cm) or more, *in its least dimension*, in a floor, roof, or other walking/working surface. (Title 29 Code of Federal Regulations, Part 1926.500.)

#### Rule

##### “Holes”

(b) (4) (i)—Each employee on walking/working surfaces shall be protected from falling through holes (including skylights) more than 6 feet (1.8 m) above lower levels, by personal fall arrest systems, covers, or guardrail systems erected around such holes.

(b) (4) (ii)—Each employee on a walking/working surface shall be protected from tripping in or stepping into or through holes (including skylights) by covers.

(b) (4) (iii)—Each employee on a walking/working surface shall be protected from objects falling through holes (including skylights) by covers.

#### Intent

To reduce injuries around holes at construction sites.

#### Hazards

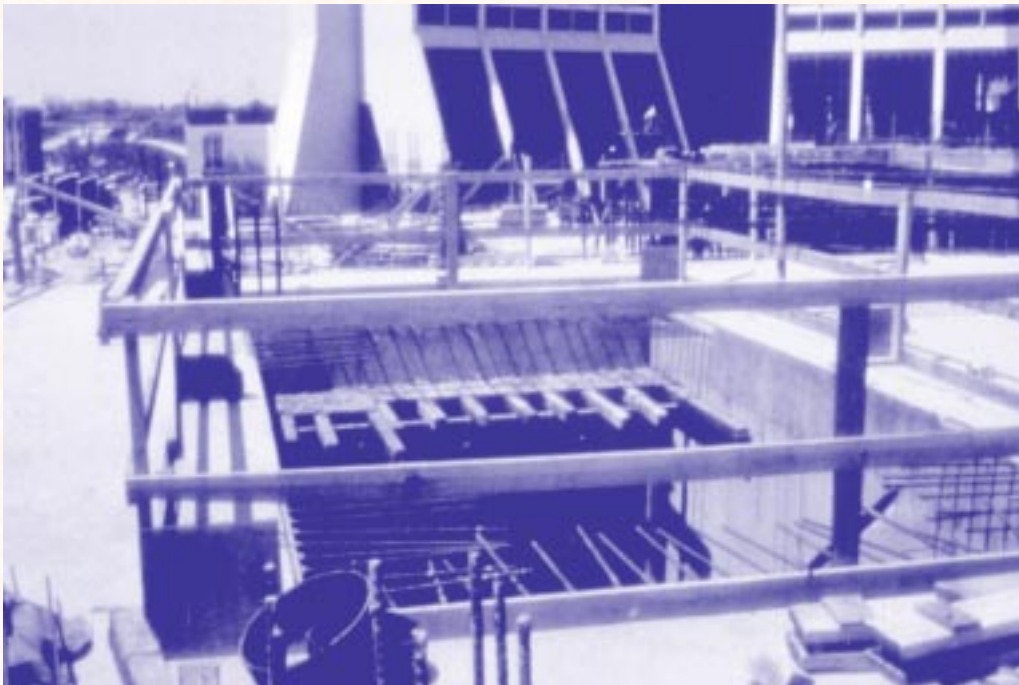
- Fall from elevation. Probable injuries range from sprains/strains to death.

- Struck by falling objects through floor hole. Probable injuries range from head injury to death.

#### (Among other) Suggested Abatements

- For new construction, identify holes as they are created and take immediate action.
- For existing structures, survey the site prior to starting work and continue the audit as renovation or repair proceeds for holes.
- Ensure all covers are constructed properly and will support the maximum intended load.

Detach Here



VIOLATION

**IN COMPLIANCE**

Proper guardrail system for a floor hole.



**VIOLATION**

IN COMPLIANCE

Unguarded hole (arrow) exposes workers to a 9-foot fall into a basement.

### Selected Case Histories

- An employee fell 16 feet to his death through an improperly guarded roof opening (36-inches x 30-inches) while attempting to stay clear of an overhead crane load. The improper guarding system consisted of four 2-inch x 4-inch posts supported using only one nail per post and high visibility barrier tape strung between the posts.
- An employee fell through an uncovered 36-inch diameter hole in the top of a slurry tank and fell 32 feet to his death.

### Comments

(1) Many deaths occur each year when floor hole covers are removed and not replaced or when they are constructed of materials that could not support the person/equipment load.

(2) Toeboards are required to prevent materials from falling through the opening and striking persons below. 29 *CFR* 1926.502(j).

(3) OSHA data indicate that floor holes were responsible for 67 fatality cases in 5 years.

### Additional Documents to Aid in Compliance

29 *CFR* 1926.500—Subpart M—Fall Protection. [JSHQ](#)



## Accident Report

From the U.S. Department of Labor  
Occupational Safety and Health Administration  
*FatalFacts* No.33

### Accident Summary

Accident Type	Electrocution
Weather	Cold and Rainy
Type of Operation	Geothermal Engineer Core Sampling
Crew Size	3
Collective Bargaining?	No
Competent Safety Monitor Onsite?	Yes
Safety and Health Program in Effect?	No
Was the Worksite Inspected Regularly by the Employer?	Yes
Training and Education Provided?	No
Employee Job Title	Core Samplers
Age/Sex	27/M; 27/M
Experience at This Type of Work	2 Days
Time on Project	2 Days

### Sources of Help

- **OSHA Construction Standards** [29 CFR Part 1926] which includes all OSHA job safety and health rules and regulations covering construction.
- OSHA-funded free consultation services. Consult your telephone directory for the number of your local OSHA area or regional office for further assistance and advice (listed under U.S. Labor Department or under the State Government section where states administer their own OSHA programs).
- Courses in construction safety and health offered by the OSHA Training Institute, 1555 Times Drive, Des Plaines, IL 60018; (847)297-4810. [JSHQ](#)

### Brief Description of Accident

Three employees were taking earth samples using a core sampling rig with a 22-foot high tower. As they removed the sampling rod, the rod struck a 4,160 volt electrical power line directly above the work area. The employee handling the sampling rod and the employee handling a guy wire attached to the sampling rod were electrocuted, while the third employee who also was handling the sampling rod was severely shocked.

### Inspection Results

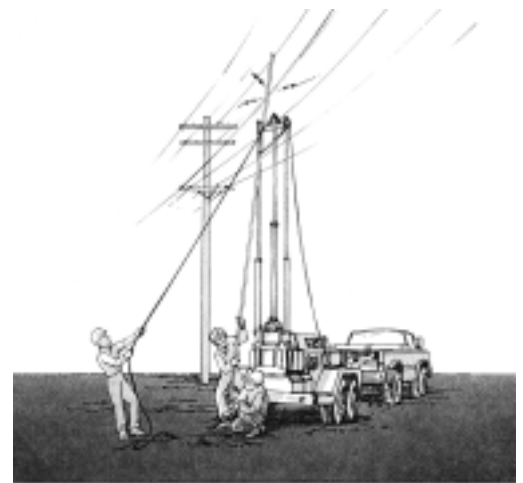
Following its inspection, OSHA cited the employer for one alleged serious violation of the agency's construction standards dealing with working too close to power lines. OSHA's construction safety

standards include several requirements which, if they had been followed here, might have prevented these fatalities.

### Accident Prevention Recommendations

- Instruct each employee to recognize and avoid unsafe conditions that apply to the work areas [Title 29 Code of Federal Regulations (CFR) 1926.21(b)(2)].
- Do not operate equipment within 10 feet of electrical distribution or transmission lines rated 50 KV or less **unless** (1) the line has been de-energized and visibly grounded at the point of work; **or** (2) insulating barriers, which are not a part of or attached to the equipment, have been erected to prevent physical contact with the line [29 CFR 1926.600 (a)(6)].

Note: The case described is representative of fatalities caused by improper work practices. No special emphasis or priority is implied nor is the case necessarily a recent occurrence. The legal aspects of the incident have been resolved, and the case is now closed. Your company may duplicate this fact sheet to share with your coworkers.



## Accident Report

From the U.S. Department of Labor  
Occupational Safety and Health Administration  
*FatalFacts* No.41

### Accident Summary

Accident Type	Trench Cave-in
Weather	Clear
Type of Operation	Mechanical Contractor
Crew Size	4
Collective Bargaining?	Yes
Competent Safety Monitor Onsite?	Yes
Safety and Health Program in Effect?	No
Was the Worksite Inspected Regularly by the Employer?	Yes
Training and Education Provided?	No
Employee Job Title	Plumber; Laborer
Age/Sex	49/M; 39/M
Experience at This Type of Work	10 Years; 2 Years
Time on Project	2 Days

### Brief Description of Accident

Four employees of a mechanical contractor were laying a lateral sewer line at a building site. The foreman, a plumber by trade, and a laborer were laying an 8-inch by 20-foot long plastic sewer pipe in the bottom of a trench 36 inches wide, 9 feet deep, and approximately 50 feet long. The trench had neither sloping nor shoring, and there was water entering it along a shale seam near the bottom. The west side of the trench caved in near the bottom, burying one employee to his chest and completely covering another. Rescue operations took 2 and 5 hours—too late to save the men.

### Inspection Results

Following its inspection, OSHA cited the employer for one serious violation and one repeat violation of its construction standards. Had the required sloping or shoring been in place, these men would have been protected from the cave-in.

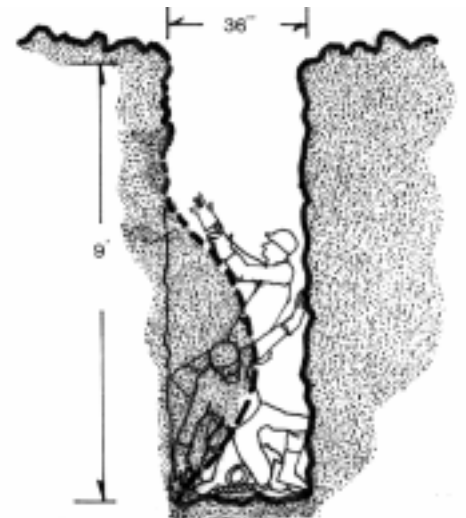
### Accident Prevention Recommendations

- Employers must instruct employees to recognize and avoid unsafe conditions associated with their work [Title 29 Code of Federal Regulations (CFR), Part 1926.21 (b) (2)].
- Sides of trenches in unstable or soft material more than 5 feet in depth must be shored, braced, sloped, or otherwise supported to protect employees working within them [29 CFR 1926.652].

### Sources of Help

- **OSHA Construction Standards** [29 CFR Part 1926] which includes all OSHA job safety and health rules and regulations covering construction.
- OSHA-funded free consultation services. Consult your telephone directory for the number of your local OSHA area or regional office for further assistance and advice (listed under U.S. Labor Department or under State Government where states administer their own OSHA programs).
- Courses in construction safety and health offered by the OSHA Training Institute, 1555 Times Drive, Des Plaines, IL 60018; (847)297-4810. [JSHQ](#)

Note: The case described is representative of fatalities caused by improper work practices. No special emphasis or priority is implied nor is the case necessarily a recent occurrence. The legal aspects of the incident have been resolved, and the case is now closed. Your company may duplicate this fact sheet to share with your coworkers.







OSHA

is on the

World Wide Web

at

[www.osha.gov](http://www.osha.gov)

Meet us in cyberspace to view

Compliance Assistance • Directives • Fact Sheets • Frequently Asked Questions • Most Frequently Violated Standards • News Releases • OSHA/Consultation Office Directory • Publications • Speeches • Standards • What's New • and more.





**U.S. Department of Labor**  
Occupational Safety and Health Administration