

CCH-EXP, HRM-OSHA, ¶1409, HAZARD ALERTS AND RECOMMENDATIONS ¶1409, HAZARD ALERTS AND RECOMMENDATIONS

NIOSH frequently publishes notices warning of newly discovered hazards or offering new information on hazards associated with particular equipment, work operations, processes, physical agents, chemicals, or combinations of chemicals. Many of these are NIOSH *Alerts* and one-page *Updates*. Others are contained in *Current Intelligence Bulletins* and other reports. Some of the NIOSH material is also available in a Spanish language version.

OSHA issues occasional single-page bulletins in the *SafeWorks*, *ErgoFacts*, *ChemAlerts*, *BloodborneFacts* and *FatalFacts* series, as well as directives to field offices outlining particular hazards. The Centers for Disease Control publishes pertinent information in its *Morbidity and Mortality Weekly Report*.

NIOSH materials may be ordered by mail from NIOSH Publications, 4676 Columbia Parkway, Cincinnati, OH 45226, or by fax at (513) 533-8573. Publications catalogs and further information may be obtained by calling the NIOSH Information System at (800) 356-4674.

OSHA bulletins and fact sheets may be obtained from OSHA Publications, Room N3101, 200 Constitution Ave., NW, Washington, DC 20210; telephone (202) 219-4667, fax (202) 219-9266.

Information on the *Morbidity and Mortality Weekly Report* may be obtained by calling (800) 843-6356. A copy of a specific issue may be purchased for \$3.00 from MMWR/MMS Publications, P.O. Box 9210, Waltham, MA 02254-9120.

Recent warnings and alerts are listed below. OSHA and NIOSH materials designed for training employers and employees are listed at [¶1407](#).

Abrasive Blasting

Users of Type CE abrasive-blast supplied-air respirators are advised by NIOSH that the agency lists four current certified units and the agency makes general recommendations for all abrasive blasting operations. NIOSH respirator user notice issued May 23, 1996.

Abrasive blasting material manufactured as "Durablast" or "Glass Frit" may expose workers to hazardous levels of cadmium, arsenic, and lead. Employers that use these materials should protect workers by compliance with the specific requirements of the cadmium, arsenic, and lead standards. Oregon Division of Occupational Safety and Health newsletter, September 1995.

NIOSH has urged that silica sand and other substances containing more than one percent free silica be prohibited as abrasive blasting material. The use of sand for blasting in foundries, for removing paint from ship hulls and bridges, etc., exposes workers to crystalline silica. *Preventing Silicosis and Deaths from Sandblasting*, NIOSH Pub. No. 92-102.

NIOSH reported a study of workers involved in abrasive blasting who were diagnosed with silicosis in *Morbidity and Mortality Weekly Report*, August 15, 1997. Workers engaged in abrasive blasting should use type CE abrasive-blast supplied-air respirators. Air-purifying and powered-air purifying respirators are not recommended for abrasive blasting, but may be suitable for clean-up operations.

Worker illnesses in a facility where oil-field drilling pipes were sandblasted were evaluated in *Morbidity and Mortality Weekly Report*, June 29, 1990.

Aerial Lifts

A worker was killed when he was thrown from an aerial lift and fell 37 feet to a concrete surface after the lift ran over some bricks, causing the extended boom to flex and throw the employee from the basket. OSHA *Fatal Fact Bulletin* No. 68.

Agriculture (see also Grain Handling)

NIOSH warns of pesticide poisoning from application of sulfotepp fumigants, a highly toxic organophosphate pesticide and cholinesterase inhibitor used in greenhouses to control pests. Case investigation showed that toxic exposure may occur despite the use of recommended respiratory protection. *Morbidity and Mortality Weekly Report*, September 13, 1996.

Suffocation in flowing grain is the most common cause of death associated with grain storage structures, NIOSH warned in a report on nine such fatal incidents in Minnesota during 1992-1995. *Morbidity and Mortality Weekly Report*, October 4, 1996.

A NIOSH warning on improper tractor hitching that resulted in the deaths of 16 tractor operators is detailed in a NIOSH *Update*, together with recommendations for avoiding the hazard. NIOSH *Update* to "Fatalities Associated with Improper Hitching to Farm Tractors-New York, 1991-1995," issued January 14, 1997.

A NIOSH guide to the development of a community-based program for reducing injuries and fatalities from tractor overturns is available, together with a facilitator's manual covering selection of a tractor safety education program planning committee, use of educational methods, and program marketing and evaluation. *Trac-Safe, A Community-Based Program for Reducing Injuries and Deaths Due to Tractor Overturns, Facilitator's Manual* (NIOSH Pub. No. 96-108).

A report on four skid-steer loader-related fatalities investigated by the NIOSH Fatality Assessment and Control Evaluation (FACE) program was published in the July 26, 1996, CDC *Morbidity and Mortality Weekly Report* (Vol. 45 No. 29). This specialized type of wheel loader is commonly used in agriculture, construction, and general industry.

Sudden rear rollovers of farm tractors occur when equipment or loads are not properly hitched, and can result in injuries and fatalities when the tractor lacks a rollover protective structure and seat belts. Recommendations for preventing accidents are found in the *Morbidity and Mortality Weekly Report*, April 19, 1996.

Organic dust toxic syndrome is an acute respiratory illness from inhaling contaminated organic dust during such procedures as shoveling oats, wood chips, or leaves, and removal of moldy top silage. *Preventing Organic Dust Toxic Syndrome*, NIOSH Pub. No. 94-102.

A NIOSH bulletin addresses the hazard created by chopping hay or straw for livestock bedding. The bedding material is usually made of low quality straw or hay that contains high levels of microorganisms, such as bacteria or fungi. Microorganisms contained in the hay or straw can be released into the atmosphere during chopping and inhaled. NIOSH recommends wet chopping or the use of a respirator to reduce the risk of inhaling the organic dust. NIOSH *Hazard Controls*, NIOSH Publication No. 97-103.

Pesticide poisoning from mixing, loading, and application of mevinphos in apple orchards was reported in the *Morbidity and Mortality Weekly Report*, January 7, 1994.

Tobacco harvesters were warned of the risk of developing a type of nicotine poisoning caused by absorption of nicotine through the skin from the surface of wet tobacco leaves. *Warning to Tobacco Harvesters* (Update), NIOSH Pub. No. 93-115.

Women workers were scalped when their hair was caught in hay balers. *Hair Entanglement in Hay Baler Drive Shafts* (Update), NIOSH Pub. No. 93-126.

The efficiency and cost-effectiveness of rollover protective structures for farm tractors are discussed in *Preventability of Tractor Rollovers* (Update), NIOSH Pub. No. 93-119.

Self-unloading forage wagons with unguarded power take-off drivelines present a serious hazard to operators. NIOSH recommends design changes to eliminate the operator's need to step over the driveline, equipping the PTO with a guard, shutting off the driveline before dismounting, and assuring that wagon operators do not wear loose clothing. *Morbidity and Mortality Weekly Report*, August 18, 1995.

Agricultural auger hazards resulting from contact with the exposed blade, entanglement in the driveline, electrocution when contact is made with overhead power lines, or contact with the spinning crank used to position the auger were reported in the *Morbidity and Mortality Weekly Report*, September 15, 1995.

Asthma.

Animal handlers, such as veterinary workers, laboratory animal workers, and workers using furs or textiles made from animal products are at risk of developing work-related asthma and allergies. Respiratory illness in animal handlers can result in permanent disability. A *NIOSH Alert*, "Preventing Asthma in Animal Handlers" addresses the health effects of exposure to airborne animal allergens and recommends prevention measures, including increased ventilation and filtration and the use of gloves, face shields, and ventilated hoods. *OSHA Hazard Information Bulletin*, July 13, 1998.

From 1993 through 1995, a total of 1,101 cases of work-related asthma (WRA) were identified by SENSOR surveillance staff members in participating states. The most common industries associated with WRA cases included transportation equipment manufacturing (19.3 percent), health services (14.2 percent), and educational services (8.7 percent). Indoor air pollutants, dusts, cleaning materials, lubricants, and diisocyanates were among the most frequently reported causes of WRA, in addition to natural rubber latex in the health care industry. Centers for Disease Control and Prevention *Morbidity and Mortality Report* (Vol. 48, No. SS-3) June 25, 1999.

Asphalt Paving

NIOSH has issued *Engineering Control Guidelines for Hot Mix Asphalt Pavers*, including recommendations on the use of local exhaust ventilation systems to reduce worker exposure to asphalt fumes during paver operations (NIOSH Pub. No. 97-105).

Auto Repair

NIOSH warns all users of supplied-air respirators of several instances of misrepresentation of NIOSH respirator approvals, concentrated in the paint spray and automotive finishing industries. NIOSH respirator user notice issued May 23, 1996.

Recommendations for the control of paint and sanding dust hazards in auto body repair shops are contained in two NIOSH Hazard Controls fact sheets: *Control of Paint Overspray in Autobody Repair Shops* (NIOSH Pub. No. 96-106) and *Evaluation of Ventilated Sanders in the Autobody Repair Industry* (NIOSH Pub. No. 96-105).

Beryllium

The four key measures taken in the U.S. to avoid beryllium exposure risks include the discontinuation of beryllium testing in rocket fuel by 1970 by the Department of Defense, OSHA's efforts in the 1970s and since 1998 to lower the exposure limits, the improvement of working conditions and medical screening in the 1980s and 1990s by the Department of Energy, and the Department of Energy's 1999 rule on beryllium worker safety. In the

1950s, studies revealed that beryllium caused cancer in laboratory animals. Today, it is considered to be a human carcinogen. Report published by the General Accounting Office (GAO) and OSHA.

Biosolids

NIOSH has issued a warning that occupational exposure to class B biosolids during land application may cause employees to suffer from gastrointestinal illnesses. Class B biosolids are sewage sludge that has undergone minimal treatment and are typically applied as fertilizer. Environmental samples taken by NIOSH from a land application operation contained potentially pathogenic bacteria, indicating the presence of enteric organisms associated with gastrointestinal illnesses. Five employees were interviewed at the site, and all five employees reported at least one episode of gastrointestinal illness after working with the biosolids. Occupations with a high risk of exposure include compost workers, surface miners, and farmers. NIOSH recommends special precautions for exposed workers that include hazard communication, training on standard hygiene practices, use of personal protective equipment, and engineering controls.

Carbon Monoxide

A comprehensive air-sampling survey was performed after warehouse employees of a beverage distributor and container recycler complained of headaches, nausea, and occasional vomiting. The employer, suspecting carbon monoxide poisoning, requested an air-sampling survey to determine employee exposures. The survey is discussed in OSHA *Safeworks* No. 13, "Onsite Consultation, Carbon Monoxide Exposure."

NIOSH warned of a *Deadly Carbon Monoxide Hazard from Using Pressure Washers Indoors* (Update), NIOSH Pub. No. 93-117.

A propane-powered floor burnisher used on building floors created a carbon monoxide hazard, according to a report in the *Morbidity and Mortality Weekly Report*, September 24, 1993.

A carbon monoxide hazard from use of gasoline-powered power washers in an underground parking garage was discussed in the May 12, 1995, *Morbidity and Mortality Weekly Report*.

Although carbon monoxide (CO) poisoning is rare in non-enclosed spaces, a case of CO poisoning was reported in a farmworker who was working outdoors alongside a tractor. December 26, 1997, *Morbidity and Mortality Weekly Report*.

Carpet Laying

Carpet layers should wear protective knee pads when kneeling on hard surfaces to avoid bursitis of the knee, fluid buildup, and skin infections. *Preventing Knee Injuries and Disorders in Carpet Layers*, NIOSH Pub. No. 90-104.

Concrete and Masonry Construction

OSHA has issued a memorandum to the construction industry warning that recent testing indicates that standard mushroom-style plastic rebar covers do not provide any protection from the hazards of impalement, even from a short fall of three feet. As a result, the mushroom caps do not meet the "guarded" requirement of §1926.701(b). OSHA *Memorandum* issued January 15, 1997.

Communication Towers. NIOSH has published a Fatality Assessment and Control Evaluation (FACE) Program report concerning a multi-person fatality at a telecommunication tower. To prevent communication tower accidents, NIOSH recommends that employers should: ensure that hoisting equipment used to lift personnel is designed to prevent uncontrolled descent and is properly rated for the intended use; comply with OSHA Compliance Directive CPL 2-1.29 "Interim Inspection Procedures During Communication Tower Construction Activities" during maintenance and construction activities on towers; ensure that workers inspect equipment on a daily basis to identify any damage or deficiencies; and make sure that required personal protective equipment is available and properly used. NIOSH *Fatality Assessment and Control Evaluation Program* (FACE) Report No. 00-07, "Three Tower Painters Die After Falling 1,200 Feet When Riding the Hoist Line," issued March 16, 2000.

Confined Spaces

OSHA warned in a June 13, 1996, *Hazard Information Bulletin* that pits housing control valves for waterfall and water fountain displays in shopping malls can pose an asphyxiation hazard for employees and may be permit-required confined spaces regulated by §1910.146.

NIOSH issued a 1994 report on *Worker Deaths in Confined Spaces: Findings and Case Reports*, NIOSH Pub. No. 94-103

Construction

NIOSH has issued a report on the prevention of respiratory disease and death among construction workers exposed to respirable crystalline silica dust. The report includes six case studies of construction workers who developed silicosis and seven examples of dust controls used in construction operations. *Request for Assistance in Preventing Silicosis and Deaths in Construction Workers*, DHHS (NIOSH) Publication No. 96-112, issued in May 1996.

The hazard to workers in an excavation posed by the rotating superstructure of a backhoe and the need for employee training are outlined in the OSHA's 1996 *FatalFacts* Bulletin No. 50.

Outdoor construction workers are at risk of Lyme's disease from work near brush, woods, and tall grass, according to a union study. Recommendations for preventing the disease are included in *Lyme Disease Prevalence Among Construction Workers on Long Island, NY*, available for \$5 from the Center to Protect Workers' Rights, 111 Massachusetts Ave. N.W., Washington, DC 20001; (202) 962-8490.

The risk of spinal injuries to workers who raise preconstructed wood-framed walls was described in the *Morbidity and Mortality Weekly Report*, December 9, 1994.

The drowning of a construction worker suspended from a crane when the load line separated was outlined in OSHA *FatalFacts* Bulletin No. 58.

The killing of a worker by a nail fired from a powder-actuated nail gun was described in OSHA *FatalFacts* No. 48.

NIOSH issued a 1991 alert on *Preventing Lead Poisoning in Construction Workers*, (revised) NIOSH Pub. No. 91-116a.

Other construction hazards are addressed in *Preventing Worker Death and Injuries from Falls Through Skylights and Roof Openings*, NIOSH Pub. No. 90-100;

Preventing Deaths and Injuries from Excavation Cave-Ins (Update), NIOSH Pub. No. 85-110. Also available in Spanish, NIOSH Pub. No. 93-110.

Cranes and Derricks

Electrocutions and injuries during crane assembly and dismantling are the leading causes of fatal accidents involving construction cranes, according to a NIOSH funded study. Most of the deaths in crane assembly and dismantling occurred when a worker was underneath a boom, knocking the lower supporting boom pins out, and the boom fell on the worker. Conically shaped boom pins that could be inserted only from inside the lattice, and thus removed without standing under the boom, were recommended as a possible solution. *Crane-Related Deaths in the U.S. Construction Industry*, 1984-94, published October 1997, by the Center to Protect Workers' Rights.

Demolition

Health hazards encountered by demolition workers are discussed in two NIOSH-sponsored union reports. *Health Hazards to Construction Workers During Demolition of Two Tenement Buildings* and *Abnormalities Consistent with Asbestos-Related Disease Among Long-Term Demolition Workers* are available from the AFL-CIO's Center to Protect Worker's Rights, 111 Massachusetts Ave. NW., Washington, DC 20001; telephone (202) 962-8490.

Dental Offices

Recommendations for reducing the hazards of administering nitrous oxide as an anesthetic during dental procedures are found in the NIOSH Hazard Controls fact sheet *Control of Nitrous Oxide in Dental Operatories* (NIOSH Pub. No. 96-107). NIOSH issued a 1994 warning specifically on *Controlling Exposure to Nitrous Oxide During Anesthetic Administration*, NIOSH Pub. No. 94-100.

Recommended infection control practices for dentistry--to protect employees against a variety of infectious agents--were published in the May 28, 1993, CDC *Morbidity and Mortality Weekly Report*.

Recommended HIV-control practices for dentistry were reported in the *Morbidity and Mortality Weekly Report*, May 28, 1993.

Cleanup procedures for a liquid mercury spill in a dental office are outlined in OSHA's *SafeWorks* Bulletin No. 15.

Dimethylethylamine (DMEA)

NIOSH warns that DMEA exposures may cause serious health effects in workers in gray-iron and aluminum foundries, polyamide manufacturing and other workplaces where DMEA is used. *Preventing Vision Disturbances and Acute Physical Distress Due to Dimethylethylamine (DMEA) Exposures*, NIOSH Pub. No. 88-103.

Dimethylmercury.

An OSHA bulletin reports that dimethylmercury, an organometallic chemical primarily used in research, is extremely toxic. Apparently, the death of a chemistry professor in 1997 was due to a single exposure to this substance. Dimethylmercury, an alkyl mercury, is a colorless liquid with a weak, sweet odor that is readily absorbed into the skin. OSHA recommends the use of less hazardous chemicals, personal protective equipment, and special safety precautions. OSHA *Hazard Information Bulletin*, issued March 9, 1998.

Dioxin (TCDD)

NIOSH recommended that 2,3,7,8-tetrachlorodibenzo-*p* -dioxin (TCDD, "dioxin") be regarded as a potential occupational carcinogen, that work exposure be controlled to the fullest extent feasible, and that decontamination measures be used for TCDD-contaminated work environments. *Current Intelligence Bulletin*, NIOSH Pub. No. 84-104.

Dry Cleaning

A NIOSH report outlines control methods and technologies used in the drycleaning industry for the reduction of occupational exposures to both tetrachloroethylene, also known as "perchloroethylene" (PERC), and petroleum-based solvents. Methods for controlling exposures to spotting chemicals, fire, and ergonomic hazards in commercial drycleaning shops are detailed. "Control of Health and Safety Hazards in Drycleaners: Chemical Exposures, Fire Hazards, and Ergonomic Risk Factors" (NIOSH Pub. No. 97-150).

Dye Dust

NIOSH has issued recommendations for control of dust from powder dye handling operations to protect workers from exposure to hazardous substances contained in the dyes. The transfer of powder dyes from bulk containers to smaller containers exposes the worker through breathing or skin contact to possible carcinogens and such adverse health effects as occupational asthma, eczema, and severe allergic reactions. *NIOSH Hazard Controls*, NIOSH Pub. No. 97-107.

Electrical Hazards (see also Power Line Hazards)

To protect workers from electrical hazards, NIOSH recommends that employers use a "buddy system" so that no one works alone with electrical energy, make first aid and cardiopulmonary resuscitation (CPR) immediately available at the worksite to provide care within four minutes, and ensure that advanced cardiac life support is available within eight minutes. *Preventing Fatalities of Workers Who Contact Electrical Energy*, NIOSH Pub. No. 87-103 (available in Spanish).

Another NIOSH alert warns of electrocution hazards from a number of unsafe work practices: *Preventing Electrocution Due to Damaged Receptacles and Connectors*, NIOSH Pub. 87-100 (available in Spanish).

OSHA reports on an electrocution incident caused by a worker on a metal ladder using a drill with a defective extension cord that was missing a grounding prong; a conductor on the grounding wire made contact with an energizing wire, causing the entire length of the grounding wire and the frame of the drill to become energized. OSHA advises employers on the use of approved ground fault circuit interrupters or an assured equipment grounding conductor program and appropriate equipment to avoid such incidents. *Fatal Facts Bulletin No. 57*.

An employee was electrocuted while unloading a telephone pole from a pipe rack mounted on a truck crane. In raising the boom, the operator made contact with overhead power lines; the victim reached for a metal chain that secured the pole to the truck rack and received a fatal electrical shock. *Fatal Facts Bulletin No. 44* recommends ways of preventing such accidents when working near overhead power lines.

Electric Power Plants

OSHA has warned of the potential rupture of feed water pipes in electrical power generation facilities, releasing hazardous steam and hot water. At least four pipe failure incidents were attributed to wall thinning as a result of single-phase erosion/corrosion, leading to rupture of the pipes under high working pressures. *Potential for Feed Water Pipes in Electrical Power Generation Facilities to Rupture Causing Hazardous Release of Steam and Hot Water*, issued October 31, 1996.

Electromagnetic Fields

NIOSH has issued a fact sheet on workplace control of electric and magnetic fields (EMFs)—lines of force created when electricity is generated or used, such as by power lines, electric wiring, and electric equipment and appliances. Some studies have shown increased cancer rates for workers exposed to high magnetic fields, but scientific evidence is not conclusive. "EMFs in the Workplace" is available from NIOSH Publications.

Fire Fighting

Using water spray by fire departments and teams responding to incidents involving flammable gas or vapor mixtures under certain conditions increase the severity of fires and explosions. *Preventing Hazards in the Use of Water Spray (Fog) Streams to Prevent or Control Ignition of Flammable Atmospheres*, NIOSH Pub. No. 85-112.

NIOSH Warns Workers About Explosive Respirator Cylinders (Update), NIOSH Pub. No. 93-127.

NIOSH warns that flashlights have exploded during use by fire fighters. Hydrogen gas is produced in the most commonly used types of flashlight batteries. If hydrogen accumulates within the batteries or battery compartments without sufficient release, the pressure can cause the battery or compartment casing to rupture. Hydrogen and oxygen are also highly explosive, and if ignited by a spark or excessive heat, can produce powerful explosions. An exploding flashlight could also touch off a larger explosion in a flammable atmosphere. *Exploding Flashlights: Are They a Serious Threat to Worker Safety?* NIOSH Pub. No. 97-149.

NIOSH has issued recommendations for the prevention of injuries from fighting propane tank fires. Boiling liquid expanding vapor explosion can occur during propane tank fires. As a precaution, firefighters should fight the fire from the maximum distance possible, cool containers by flooding them with large quantities of water, and leave the area immediately if the tank discolors or if a rising sound is emitted from venting safety devices. Two volunteer firefighters were killed when they were struck by a piece from an exploding tank. *NIOSH Hazard ID*, DHHS (NIOSH) Publication No. 99-129, dated June, 1999.

Fishing

Recommendations for use of personal flotation devices on fishing boats are included in *Preventing Drownings of Commercial Fishermen*, NIOSH Pub. No. 94-107.

The hazards of sea urchin harvesting were reported in *Morbidity and Mortality Weekly Report*, April 8, 1994.

NIOSH warns that *Students May be Risking Their Lives on Fishing Vessels* (Update), NIOSH Pub. No. 93-111.

NIOSH issued a report concerning the prevention of commercial fishing fatalities within the fishing industry of Alaska. Alaska's statistics show an occupational fatality rate of 140/100,000 workers a year, which is 20 times the national average. *Current Intelligence Bulletin 58: Commercial Fishing Fatalities in Alaska, Risk Factors and Prevention Strategies*, DHHS (NIOSH) Pub. No. 97-163.

NIOSH has published the proceedings from the Second National Fishing Industry Safety and Health Workshop (FISH II) held in Seattle. Topics that were addressed during the workshop included: defining the problem and identifying the population at risk; commercial fishing safety; and intervention strategies along with safety promotion. "Proceedings of the Second National Fishing Industry Safety and Health Workshop."

Fluorocarbons

NIOSH investigators of an outbreak of severe flu-like symptoms among workers at a sign and stamp shop diagnosed the episodes as polymer-fume fever resulting from exposure to fluorocarbon monomer tetrafluoroethylene, used to release molds used in making rubber stamps and recommended that all fluorocarbons be listed on container labels. *Morbidity and Mortality Weekly Report*, August 14, 1987.

Furniture Stripping

Questions and Answers--Methylene Chloride Control in Furniture Stripping (NIOSH Pub. No. 93-133) describes the hazards of exposure to methylene chloride, the most common active ingredient in paint removers.

Glassware Manufacturing

Recommendations for controlling mercury exposures at a plant that manufactures laboratory glassware are found in the OSHA's 1996 *Safeworks Bulletin* No. 3.

Grain Handling

NIOSH warnings on grain handling hazards are reported in *Preventing Entrapment and Suffocation Caused by the Unstable Surfaces of Stored Grain and Other Materials*, NIOSH Pub. No. 88-102; *Preventing Fatalities Due to Fires and Explosions in Oxygen-Limiting Silos*, NIOSH Pub. No. 86-118; *Preventing Grain Auger Electrocutions*, NIOSH Pub. No. 86-119 (available in Spanish).

Hantavirus Exposures

Hantavirus exposure to employees such as pest-control workers in the Southwest, where the virus is carried by several species of mice and chipmonks, was discussed in the *Morbidity and Mortality Weekly Report*, July 30, 1993.

Health Care Facilities (see also Dental Offices)

During surgical procedures using a laser or electrosurgical unit, the destruction of tissues creates a smoke byproduct that can contain toxic gases and vapors, such as benzene, hydrogen cyanide, formaldehyde, and bioaerosols. NIOSH *Hazard Controls*, "Control of Smoke from Laser/Electric Surgical Procedures," DHHS (NIOSH) Pub. No. 96-128.

OSHA's 1995 guidelines for controlling occupational exposure to cytotoxic and hazardous drugs are found in the *OSHA Technical Manual*, Section V, Chapter 3, available from OSHA.

NIOSH issued a 1994 warning on *Controlling Exposure to Nitrous Oxide During Anesthetic Administration*, NIOSH Pub. No. 94-100.

Ribavirin aerosol is a hazard to health care workers and patient visitors who are pregnant or may become pregnant. *Morbidity and Mortality Weekly Report*, September 16, 1988.

Policies and procedures were recommended to reduce the rate of Hepatitis C Virus infection among health care workers, including testing and follow-up care; avoidance of post-exposure prophylaxis with immune globulin or anti-viral agents, such as interferon; and follow-up policies and procedures. *Morbidity and Mortality Weekly Report*, July 4, 1997, (Vol. 46 No. 32).

Heat Stress

Employers should take precautions to protect their workers from heat-related illnesses. To that end, OSHA has suggested tips for employers and workers to prevent heat-related disorders. Some of OSHA's suggestions to combat heat stress are: encourage workers to drink plenty of water; assign lighter workloads and longer rest periods; wear lightweight, loose-fitting, light-colored clothing; use general ventilation and spot cooling at points of high heat production; learn to spot the signs of heat stroke; consider a worker's physical fitness to work in hot environments; be aware of certain medical conditions that increase the risk from heat exposure; and monitor temperatures, humidity, and workers' responses to heat at least hourly. *Protecting Workers in Hot Environments* is a one-page OSHA fact sheet.

Herbicide Production

The Centers for Disease Control and Prevention has reported that the chemical 2,4-dichlorophenol (2,4-DCP) has been associated with several occupational fatalities. 2,4-DCP is a feedstock chemical primarily used to produce the herbicide 2,4-dichlorophenoxyacetic acid (2,4-D). In liquid form 2,4-DCP can be easily absorbed through the skin. The most recent fatality cited by the CDC occurred in 1998 when a 29-year old employee at a Michigan chemical company used steam to clear a blocked pump and was sprayed with 2,4-DCP from a leaking tube. Despite showering, the worker died one hour after exposure. Since 1980, four other fatalities have occurred at companies in the United States, France, and England. The CDC recommends the use of engineering controls, source reduction methods, standard safe work procedures, alarmed safety showers, and personal protective equipment to prevent future fatalities.

Home Contamination

The families of workers have been exposed to a variety of risks from hazardous substances carried home by workers on their clothes, skin, hair, and tools. Effective preventive measures involve decontamination procedures at the workplace, such as showering, air showers, vacuuming, and changing clothes before leaving the workplace, and protected storage of street clothes. *Report to Congress on Workers' Home Contamination Study Conducted Under the Worker's Family Protection Act* (NIOSH Pub. 95-123).

Isocyanates

Toluene diisocyanate (TDI), methylene bisphenyl isocyanate (MDI), and hexamethylene diisocyanate (HDI), which are widely used in the manufacture of foams, fibers, paints, varnishes, and elastomers and are increasingly used in the auto industry, auto body repair, and building insulation, should be replaced in the workplace by safer materials to the extent feasible to prevent serious or fatal respiratory disease. *Preventing Asthma and Death from Diisocyanate Exposure* (NIOSH Pub. No. 96-111).

Latex

NIOSH has issued a report concerning the prevention of allergic reactions to natural rubber latex in the workplace, describing case studies of workers who have suffered the most serious allergic reactions to latex. All of the affected workers were in contact with latex gloves, including factory inspectors, health care workers, housekeepers, hairdressers, and food service workers. *Preventing Allergic Reactions to Natural Rubber Latex in the Workplace*, NIOSH Pub. No. 97-135, issued June 1997.

Lead

Lead poisoning contracted by a microwave technician from chewing plastic wire coating was discussed in the *Morbidity and Mortality Weekly Report*, June 25, 1993.

A warning about elevated blood lead levels in employees of a company that formulates color pigments for the plastics industry was reported in the *Morbidity and Mortality Weekly Report*, May 1, 1992.

Lead exposures among battery reclamation workers were reported in the *Morbidity and Mortality Weekly Report*, May 1, 1992.

A study of lead exposures among metal burners who were lining the interior of large steel tanks with lead sheets was reported in the *Morbidity and Mortality Weekly Report*, May 1, 1992.

A study of lead exposures and noise-induced hearing loss during firearms training at the FBI Academy in Quantico, VA, was reported in a NIOSH Health Hazard Evaluation Report, HETA 91-0346-2572, issued in April 1996.

Logging

Investigations of logger fatalities indicated that all of the deaths could have been prevented. NIOSH recommendations for logging safety are found in *Preventing Injuries and Deaths of Loggers*, NIOSH Pub. No. 95-101.

Lung Disease

A 202-page report entitled *Work-Related Lung Disease Surveillance Report 1999*, has been issued by NIOSH. Summary tables and figures of occupational respiratory disease surveillance data focusing on specific occupationally-relevant respiratory diseases such as pneumoconioses, occupational asthma, other airway diseases, and several other respiratory conditions are set forth in the report. NIOSH Pub. No. 2000-105.

Workers who cause, or are near, disturbances of dusty material contaminated with the *Histoplasma capsulatum* fungus are in danger of contracting the infectious disease histoplasmosis when they inhale spores of the fungus. Disturbance of soil at a poultry house, active or inactive bird roost, excavations in regions where the fungus is endemic, or removal of accumulations of bat or bird manure can cause release of the fungus. *Histoplasmosis, Protecting Workers at Risk*, NIOSH Pub. No. 97-146, September 1997.

Lyme Disease

Lyme disease, a tick-borne illness that affected more than 16,000 people in 1998, may cause chronic arthritis, heart disease, and/or neurologic disorders. However, if recognized early, Lyme disease can be successfully treated with standard antibiotic regimens. Outdoor workers in occupations

such as construction, landscaping, and forestry, and employees who work in heavily wooded or grassy areas are at an increased risk of exposure to Lyme disease bearing ticks. Workers can help prevent Lyme disease by avoiding tick habitats, wearing clothing that keeps ticks from reaching the skin, using insect repellents, and considering with their physician the use of a protective vaccine. OSHA *Hazard Information Bulletin* "Lyme Disease," (HIB 00-4-20).

Mercury carburetor synchronizer.

To balance the vacuum pressure in motorcycles and marine outboard engines with multiple carburetors, mechanics often use mercury carburetor synchronizers. However, acute exposure to high concentrations of mercury vapor can cause damage to the lungs, kidneys, and central nervous system. NIOSH recommends the use of safe work practices, adequate ventilation, and mercury-free instruments whenever possible. NIOSH *Hazard ID*, DHHS (NIOSH) Publication No. 99-111, June 1999.

Metal Coating

A warning on the risk of lung disease from using aerosolized cobalt powder in a metal parts coating process in an enclosed chamber was published in the *Morbidity and Mortality Weekly Report*, January 31, 1992.

Metal Halide Lamps

OSHA has issued a Technical Information Bulletin that addressed the possible failure of metal halide lamps. Metal halide lamps use quartz arc tubes that operate at high pressures and temperatures that can reach as high as 1832 degrees Fahrenheit. The arc tubes can rupture unexpectedly due to internal causes or external factors. The National Electrical Manufacturers Association recommends that metal halide lamps be turned off for a minimum of 15 minutes at least once each week. Metal halide lamps should also be replaced at or before the end of their rated lives.

Lung Disease

NIOSH has issued a 450-page report on work-related lung diseases that provides national and state-specific summaries of occupational respiratory disease surveillance data, focusing specifically on pneumoconiosis mortality, including asbestosis, coal workers' pneumoconiosis, silicosis, and byssinosis. *Work-Related Lung Disease Surveillance Report 1996*, NIOSH Pub. No. 96-134.

Workers who cause, or are near, disturbances of dusty material contaminated with the *Histoplasma capsulatum* fungus are in danger of contracting the infectious disease histoplasmosis when they inhale spores of the fungus. Disturbance of soil at a poultry house, active or inactive bird roost, excavations in regions where the fungus is endemic, or removal of accumulations of bat or bird manure can cause release of the fungus. *Histoplasmosis, Protecting Workers at Risk*, NIOSH Pub. No. 97-146, September 1997.

Mercury carburetor synchronizer.

To balance the vacuum pressure in motorcycles and marine outboard engines with multiple carburetors, mechanics often use mercury carburetor synchronizers. However, acute exposure to high concentrations of mercury vapor can cause damage to the lungs, kidneys, and central nervous system. NIOSH recommends the use of safe work practices, adequate ventilation, and mercury-free instruments whenever possible. NIOSH *Hazard ID*, DHHS (NIOSH) Publication No. 99-111, June 1999.

Metal Coating

A warning on the risk of lung disease from using aerosolized cobalt powder in a metal parts coating process in an enclosed chamber was published in the *Morbidity and Mortality Weekly Report*, January 31, 1992.

Methylene Chloride

Questions and Answers--Methylene Chloride Control in Furniture Stripping, NIOSH Pub. No. 93-133, describes the hazards of exposure to the most common active ingredient in paint removers.

Guidelines for controlling employee exposures to methylene chloride were developed by OSHA in 1986. They were released as an appendix to OSHA *Instruction* PUB 8-1.2 and are available from OSHA.

Microelectronics

Gallium arsenide particulates inhaled or ingested by workers in the microelectronics industry may cause a risk of cancer. NIOSH recommends that employers control gallium arsenide exposures by observing the recommended exposure level for inorganic arsenic. *Reducing the Potential Risk of Developing Cancer from Exposure to Gallium Arsenide in the Microelectronics Industry*, NIOSH Pub. No. 88-100.

N-Nitroso Compounds

OSHA warned that N-nitroso compounds--amine compounds that have been nitrosated with nitrogen oxides from the air--have been found in the dye, rubber, fish meal, leather, soap, detergent, and surfactant industries; among manufacturers and users of synthetic metalworking fluids; and in foundries. Nitrosated amine compounds have been designated as anticipated human carcinogens. OSHA Health Hazard Information Bulletin, March 15, 1990.

Nitrous Oxide

Recommendations for reducing the nitrous oxide (N₂O) exposures of employees administering anesthetic gas during medical, dental, and veterinary procedures to 25 parts per million are included in *Controlling Exposures to Nitrous Oxide During Anesthetic Administration* (NIOSH Pub. No. 94-100).

A one-page NIOSH Hazard Control fact sheet is also available: *Control of Nitrous Oxide in Dental Operatories* (NIOSH Pub. No. 96-107).

Noise

NIOSH noted that between 7.4 and 10.2 million people work at sites where the noise level of 85 decibels or higher presents an increased risk of hearing loss and proposed that the limit be reduced to 85 dBA. *Morbidity and Mortality Weekly Report*, March 18, 1988.

A study of lead exposures and noise-induced hearing loss during firearms training at the FBI Academy in Quantico, VA, was reported in a NIOSH Health Hazard Evaluation Report, HETA 91-0346-2572, issued in April 1996.

Organic Solvents

Organic solvents and various organic solvent mixtures used in paints, adhesives, glues, coatings, and cleaning and degreasing agents, as well as in the production of dyes, polymers, plastics, textiles, printing inks, agricultural products, and pharmaceuticals pose both acute and chronic neurotoxic hazards to workers. Guidelines for minimizing worker exposures are contained in *Current Intelligence Bulletin--Organic Solvent Neurotoxicity*, NIOSH Pub. No. 87-104.

Pet Grooming

Pet groomers using flea-dip products may be exposed to cholinesterase-inhibiting organophosphate pesticides, according to a report in the *Morbidity and Mortality Weekly Report*, June 3, 1988.

Pile Driving

OSHA has issued accident prevention recommendations for working with pile driving equipment in Fatal Facts Bulletin No. 35.

Plastic Injection Molding

OSHA has issued a Hazard Information Bulletin warning that workers involved in the manufacture of plastic parts using injection molding equipment may be at an increased risk of Legionnaire's disease, a potentially life-threatening form of pneumonia. The disease-causing organisms have been found in the water used to cool the metal molds and process equipment used during the manufacture of plastic parts. OSHA *Hazard Information Bulletin*, dated December 9, 1998.

Power Line Hazards

Preventing Electrocutions of Crane Operators and Crew Members Working Near Overhead Power Lines (NIOSH Pub. No. 95-108) recommends safe practices for work near power lines.

Preventing Injuries and Deaths from Metal-Reinforced Hydraulic Hoses, NIOSH Pub. No. 93-105, warns of burn and electrocution hazards to workers using metal-reinforced hydraulic hoses on aerial bucket trucks near power lines.

Other warnings include *Preventing Electrocutions of Workers Using Portable Metal Ladders Near Overhead Power Lines*, NIOSH Pub. No. 89-110, and *Preventing Electrocutions by Undetected Feedback Electrical Energy Present in Power Lines*, NIOSH Pub. No. 88-104.

Power Presses

NIOSH noted that despite OSHA requirements for operation of mechanical power presses, injuries and amputations continued to occur frequently. *Injuries and Amputations from Work with Mechanical Power Presses*, NIOSH Pub. No. 87-107, includes recommendations for safe use of foot-controlled or two-hand-controlled presses.

Printing

Press operators and other workers in the printing business are exposed to airborne solvent vapors generated when presses are cleaned, according to a NIOSH bulletin that explains a method of reducing exposures to cleaning-solvent vapors by substitution of cleaning solutions that do not contain potential carcinogens, as well as the use of a local ventilation system. The storage of wipers in closed containers, the use of squeeze bottles

Pulp, Paper, and Paperboard Mills

OSHA's *Selected Occupational Fatalities Related to Pulp, Paper, and Paperboard Mills as Found in Reports of OSHA Fatality/Catastrophe Investigations* describes the causes of accidents and recommended safety procedures. It is available from NTIS, 5285 Port Royal Rd., Springfield, VA 22161, telephone (703) 487-4650. The order number is PB-93-213502.

Respirators

NIOSH has issued a respirator user notice updating the NIOSH *Guide to the Selection and Use of Particulate Respirators Certified under 42 CFR part 84* (NIOSH No. 96-101), published in January 1996. It modifies the NIOSH service time recommendations for P-series particulate respirators following laboratory studies indicating that the efficiency of P-series filters may be significantly reduced with long term use in the presence of oil aerosols. *NIOSH Respirator User Notice*, issued May 2, 1997.

Restaurants

A large portion of work-related burns are associated with the use of deep-fat fryers by restaurant workers, especially teenagers working in fast food establishments. *Morbidity and Mortality Weekly Report*, September 24, 1993.

NIOSH has warned of the hazards associated with electrical appliances in the kitchens of commercial restaurants in *Preventing Electrocution of Workers in Fast Food Restaurants*, NIOSH Pub. No. 85-104 (available in Spanish).

Robotics

Preventing Injury of Workers by Robots, NIOSH Pub. No. 85-103 (available in Spanish).

Rock Drilling

NIOSH issued a warning on employee exposures to crystalline silica during rock drilling on projects such as caisson construction, mining, quarrying, and tunnel, highway, and dam construction. *Preventing Silicosis and Deaths in Rock Drillers*, NIOSH Pub. No. 92-107.

Scaffolds

NIOSH warnings on fall hazards from defective suspension scaffolds are found in *Preventing Workers Injuries and Deaths Caused by Falls from Suspension Scaffolds*, NIOSH Pub. No.92-108; *Nationwide Alert on Dangers of Working from Scaffolds* (Update), NIOSH Pub. No. 93-120.

A warning on electrocution hazards of work near overhead power lines was issued in *Preventing Electrocutions During Work With Scaffolds Near Overhead Power Lines*, NIOSH Pub. No. 91-110.

Sandblasting

A sandblaster died after being asphyxiated from nitrogen being fed into his hood after workers hooked their air supply hoses into a manufacturing plant's air supply system without advising plant management. The plant's compressor was shut down for scheduled maintenance, causing the nitrogen back-up system to come online to maintain air pressure. OSHA *Fatal Fact* Bulletin No. 67.

Silica

NIOSH requests assistance in informing construction workers about the hazards associated with exposure to respirable crystalline silica. Crystalline silica is found in concrete, masonry and rock. Silica dust is produced by abrasive blasting using silica sand, abrasive blasting of concrete, rock drilling, dumping and hauling rock, grinding concrete or masonry, and demolition. A NIOSH pamphlet, *Construction Workers: It's Not Just Dust*, NIOSH Pub. No. 97-101, can be used to educate construction workers about silica hazards.

A joint silicosis prevention program has been launched by the Department of Labor, the American Lung Association, and NIOSH, aimed at over one million workers who are exposed to silica dust on the job. A package of materials, including a "tip" sheet for preventing silicosis, a guide for working safely with silica, and hard hat stickers are available from the NIOSH telephone information service (1-800-35-NIOSH or 1-800-35-6474).

NIOSH has urged that silica sand and other substances containing more than one percent free silica be prohibited as abrasive blasting material. The use of sand for blasting in foundries, for removing paint from ship hulls and bridges, etc., exposes workers to crystalline silica. *Preventing Silicosis and Deaths from Sandblasting*, NIOSH Pub. No. 92-102.

NIOSH issued a warning on employee exposures to crystalline silica during rock drilling on projects such as caisson construction, mining, quarrying, and tunnel, highway, and dam construction. *Preventing Silicosis and Deaths in Rock Drillers*, NIOSH Pub. No. 92-107.

NIOSH has issued a report on the prevention of respiratory disease and death among construction workers exposed to respirable crystalline silica dust. The report includes six case studies of construction workers who developed silicosis and seven examples of dust controls used in construction operations. *Request for Assistance in Preventing Silicosis and Deaths in Construction Workers*, DHHS (NIOSH) Publication No. 96-112, issued in May 1996.

A study on silicosis deaths among young adults from 1968 through 1994 was reported in the *Morbidity and Mortality Weekly Report*, May 1, 1998.

Scrap Paper Balers

NIOSH has issued recommendations that can protect workers from crushing and amputation hazards that may occur either when a scrap paper baler is inadequately safeguarded or if hazardous energy lockout procedures are not followed. NIOSH *Hazard Controls*, April 1997, NIOSH Pub. No. 97-113.

Toluidine

Data from a study of a plant that use o-toluidine and aniline to manufacture a rubber anti-oxidant show a clear association between employee exposures to these substances and increased risk of bladder cancer. NIOSH recommended reducing exposures to the lowest feasible concentration. *Preventing Bladder Cancer from Exposure to o-Toluidine and Aniline*, NIOSH Pub. No. 90-116.

Tree Trimming

NIOSH has issued recommendations on *Preventing Falls and Electrocutions During Tree Trimming*, NIOSH Pub. No. 92-106.

Ultraviolet Radiation

OSHA has issued a pocket card that offers suggestions on safeguarding outdoor workers from harmful ultraviolet (UV) radiation. Sunlight is the main source of UV radiation, which can cause eye damage, premature aging of the skin, and skin cancers such as melanoma. Outdoor workers with fair skin and hair, freckles, or numerous or irregular moles are especially susceptible to sun damage. Workers who spend time outdoors should protect themselves by wearing protective clothing that does not transmit visible light; broad-brimmed hats that protect the face, ears and neck; and UV ray-blocking sunglasses. Workers should also apply sunscreen with a Sun Protection Factor of 15 or higher frequently, and seek shade between 10 a.m. and 4 p.m. OSHA Pub. 3166 (2000), "Protecting Yourself Against Harmful Sunlight."

Veterinarians

Recommendations for reducing the nitrous oxide (N₂O) exposures of employees administering anesthetic gas during veterinary procedures to 25 parts per million are included in *Controlling Exposures to Nitrous Oxide During Anesthetic Administration* (NIOSH Pub. No. 94-100).

Violence in the Workplace

Preventing Homicide in the Workplace, NIOSH Pub. No. 93-109, discusses the types of workplaces most at risk and recommends general preventative measures.

Wood Chippers

Workers feeding material into self-feeding wood chippers are at risk of being fed through the chipper knives if they reach or fall into the infeed hopper. Eleven workers lost their lives during 1992 through 1997 while working near mobile wood chippers. Workers are not only exposed to the hazard of becoming entangled in branches feeding into the machine, but are also at risk of being struck by unlatched, improperly secured, damaged, or improperly maintained hoods that may be thrown from the wood chipper after contacting the rotating chipper knives. NIOSH *Hazard ID* "Injury Associated with Working Near or Operating Wood Chippers," HID 8, August 1999, NIOSH Pub. No. 99-145.

Wood Dust

NIOSH has issued three bulletins on the control of wood dust from table saws, shapers, and automated routers to prevent adverse health effects among exposed workers, including eye and skin irritation, allergies, reduced lung function, asthma, and nasal cancer. NIOSH recommends that exhaust hoods be used for shapers and table saws and that a jet stripper system be used with automated routers. Because none of these dust control devices is commercially available, NIOSH should be called for information at (800) 356-4674. *Control of Wood Dust From Table Saws*, NIOSH Pub. No. 96-127, *Control of Wood Dust From Shapers*, Pub. No. 96-122, and *Control of Wood Dust From Automated Routers*, No. 96-123.

OSHA has issued a warning about the dangers of the improper installation of wood dust collectors in the woodworking industry, resulting in potential fire and explosion hazards. OSHA recommends that dust-control systems be located outside a building except when the outside vent is straight and less than 10 feet long or when the dust collectors are protected by explosion suppression systems. OSHA *Hazard Information Bulletin*, "Improper Installation of Wood Dust Collectors in the Woodworking Industry," issued May 2, 1997.