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It Pays to be Safe: By Grayson Gregory

CONN-OSHA is responsible for ensuring that all municipal and state government employees have a safe and healthy work environment. One component of this effort involves the inspection of public sector workplaces by CONN-OSHA's team of compliance officers. The compliance officers conducted nearly 2,000 inspections during the 10-year period from 1/1/96 to 12/31/05 and cited 7,385 violations of OSHA standards. Almost 3,000 were considered serious and initial penalties associated with these violations amounted to \$442,370.

The ten most frequently cited violations with the highest initial penalties are detailed in Table 1. Three of the "top ten" involve violations of standards from the Toxic and Hazardous Substances subpart of the OSHA Standards for General Industry. Specifically, they involve hazard communication, exposure control and chemical hygiene plans.

The standard violated most frequently in public sector workplaces that generated the highest initial penalties (see Table 2) was failure to develop, implement, and maintain a written hazard communication program. The program must include container labeling and other forms of warning, material safety data sheets, employee training, and an up to date list of hazardous chemicals found in the workplace.

The use of unapproved containers and portable tanks generated the second highest penalties. Storing gasoline or other class 1B flammable liquids in

containers without spill-proof lids and self-venting capabilities is considered a serious hazard. Employers must provide safety containers that are approved for the flammable liquid that will be stored and/or dispensed from them.

The next costliest violation concerns medical services and first aid. Emergency eye wash facilities must be provided within the work area where employees are potentially exposed to injurious corrosive materials. The eyewash must have adequate liquid for at least 15 minutes of flushing with tepid water. The eye wash station should be near the hazardous work areas, clearly marked, brightly colored, well lighted and free of obstructions.

Failure to protect employees from potential falls costs employers a significant amount of money each year. Every open-sided floor or platform 4 feet or more above the ground must be guarded with a standard railing. A standard railing consists of a top rail, intermediate rail, toe board, and posts, and has a vertical height of 42 inches from the upper surface of the top rail to the floor. The completed structure shall be capable of withstanding a load of at least 200 pounds applied in any direction at any point on the top rail. *(cont. on p. 2)*

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Table 1
Ten Most Frequently Violated Standards with the Highest Initial Penalties, Connecticut, Total Public Sector, 1/1/96 – 12/31/05

Standard Number	Standard	Section	Initial Penalties
1910.1200(e)(1)	Hazard Communication	Written program	\$32,280
1910.106(d)(2)	Flammable and Combustible Liquids	Container and portable tank storage	\$26,260
1910.151(c)	Medical Services/First Aid	Eye wash facilities	\$18,690
1910.23(c)(1)	Guarding Floor and Wall Openings	Railing	\$17,040
1910.303(g)(2)	Electrical	Guarding of live parts	\$15,480
5(a)(1)	General Duty Clause	Safe and healthful conditions	\$13,380
1910.242(b)	Hand and Portable Powered Tools	Compressed air used for cleaning	\$11,550
1910.1030(c)(1)	Bloodborne Pathogens	Exposure control plan	\$11,380
1910.1450(e)(1)	Hazardous Chemicals	Chemical hygiene plan	\$9,840
1910.147(c)(1)	Lockout/Tagout	Energy control procedure	\$8,110

(cont. from p. 1)

Live parts of electric equipment operating at 50 volts or more must be guarded against accidental contact. Contact with live parts can result in electric shock, burns or electrocution. The exposed electrical parts must be guarded by using barriers, enclosures or elevation 8 feet or more above the floor or other working surfaces.

CONN-OSHA often cites employers under Section 5(a)(1) of the Occupational Safety and Health Act. This section, known as the General Duty Clause, requires employers to furnish a work environment that is free from recognized hazards for all employees. Inspectors cited violations of the General Duty Clause and assessed initial penalties that made it sixth overall.

The next most costly violation cited by CONN-OSHA was using compressed air for cleaning purposes. The standard prohibits the use of compressed air for cleaning purposes unless the pressure is reduced to less than 30 p.s.i. and then only with personal protective equipment.

The next two standards violated frequently involve exposure to bloodborne pathogens or other potentially infectious materials and chemical hygiene. A written exposure control plan must be established to eliminate or minimize employee exposure to bloodborne pathogens or other potentially infectious materials. The written plan must include exposure determination, methods of compliance, vaccination and post-exposure evaluation procedures, training of personnel, labels and signs, and record keeping. Similarly, where hazardous chemicals are used in a laboratory, employers must develop and implement a written chemical hygiene plan. The written

	Most Frequently Violated Standard	2nd Most Frequently Violated Standard	3rd Most Frequently Violated Standard
Total Municipal Government	Written hazard communication program	Container and portable tank storage	Eye wash facilities
Police	Bloodborne pathogens- methods of compliance	Bloodborne pathogens- information and training	Bloodborne pathogens- exposure control plan
Fire	Fire brigade - training and education	Emergency response to hazardous substance releases	Written hazard communication program
Street & Highway	Protection of employees in excavations	Container and portable tank storage	Construction safety training and education
Public Utilities	Protection of open-sided floors, platforms, and runways	Container and portable tank storage	Process safety management of highly hazardous chemicals
Parks & Recreation	Written hazard communication program	Bloodborne pathogens-exposure control plan	Container and portable tank storage
Total State Government	Written hazard communication program	Lead exposure	Container and portable tank storage
Social Services	PPE hazard assessment and equipment selection	Written hazard communication program	Requirements for exit routes
Health Services	Emergency action plan	Eye wash facilities	Automatic sprinkler system
Highway Maintenance Garage	Container and portable tank storage	Compressed air used for cleaning	Machine guarding
Justice, Public Order & Safety	Lead exposure	Respiratory protection	Respiratory Fit Testing

Standard Number	Standard	Section	Total Violations
1910.303(b)(1)	General electrical requirements	Examination, installation, and use of equipment	325
1910.305(g)(1)	Wiring methods	Flexible cords and cables	304
1910.157(e)(2)	Portable fire extinguishers	Inspection, maintenance, and testing	296
1910.1200(e)(1)	Hazard Communication	Written program	278
1910.1200(f)(5)	Hazard Communication	Labels and other forms of warning	205
1910.1200(h)(1)	Hazard Communication	Information & training	194
1910.22(d)(1)	Walking-working surfaces	Floor loading protection	155
1910.1200(g)(1)	Hazard Communication	Material safety data sheets	155
1910.305(b)(1)	Wiring methods	Cabinet boxes	154
1910.106(d)(2)	Flammable and Combustible Liquids	Container and portable tank storage	137

program must include standard operating procedures, control measures to reduce exposure, personal protective equipment, employee information and training, provisions for medical consultation and medical examination, and decontamination procedures.

Rounding out the “top ten” list of frequently violated standards with the highest initial penalties is the energy control program (lockout/tagout). The employer must establish energy control procedures, employee training and periodic inspections to ensure that machines or equipment cannot become unexpectedly energized during service or maintenance.

It is every employer’s responsibility to maintain a safe and healthy workplace. Work-related injuries, illnesses and deaths are costly to everyone. A safe and healthy work environment pays, in more ways than one. Complying with OSHA standards is just one such way.

Special Emphasis Programs: *By Richard Crans and Catherine Zinsser*

Special Emphasis Programs (SEP) were developed to provide programmed inspections in facilities with high injury and/or illness rates or in establishments with specific hazards that might not be covered under the standard inspection selection criteria. These emphasis programs select operations to visit using factors such as: specific industry, trade/craft, substance or other hazard, type of workplace operation, type/kind of equipment, or other identifying characteristic. The SEP may include employers with ten or fewer employees.

Industrial operations typically have hazards that manifest themselves through employees' injuries and illnesses. Using this information, OSHA develops emphasis programs in which one or more regional or area offices may participate.

Each emphasis program is comprised of two elements. The first is to eliminate overexposure to the physical and/or chemical hazard. The second is educating employers and employees to the hazards associated with the physical and/or chemical hazard and methods that can be used to reduce worker exposure. CONN-OSHA along with the Hartford and Bridgeport area offices, jointly provide outreach worker training on these emphasis programs and their associated hazards. The following is the first in a series of articles that will highlight emphasis programs currently in place that may affect Connecticut employers.

Region 1 Emphasis Program:

Methylene Diphenyl Isocyanate (MDI)

In February 2005, a Local Emphasis Program (LEP) for Methylene Diphenyl Isocyanate (MDI) was initiated. MDI falls within a group of highly reactive and toxic compounds used to make urethane, polyurethane or polyurea coatings. Hazards related to exposure to MDI may result from chemical inhalation or skin contact. Reactions to exposure can range from irritation of the skin, eyes, nose, throat, and lungs to a reduction in lung function, asthma and hypersensitivity. In extreme cases, death can occur from the severe asthma attacks in sensitized individuals.

This LEP addresses the use of MDI, specifically in the sprayed-on truck bed lining industry. This industry has grown rapidly over the past several years and is primarily composed of small companies, which may be unaware of the significant hazard. Federal OSHA offices have developed a list of establishments known or likely to conduct this type of operation. Inspections are based upon this list.

An adequately trained workforce, including management and employees, is the first step in reducing or eliminating the hazards associated with the use of isocyanate containing ma-

terials. The Hazard Communication standard requires that employers provide their employees with information and training concerning chemical hazards and controls.



Ventilation is probably the most important engineering control when combating exposure to an isocyanate or other air contaminants. Unfortunately, the way this spraying process takes place, utilizing ventilation controls alone may not be adequate. Spraying takes place in the truck bed and the flow of air controlled by the spray booth may not be able to adequately remove the vapors. As a result, selection and proper use of Personal Protective Equipment (PPE) is necessary.

When selecting PPE it is critical you understand the process as well as the hazards of the chemicals. In the case of MDI, you want to protect the skin from having any contact with the chemical. This may necessitate the use of gloves, coveralls, head, face, eye, and foot protection. You may also need to supplement the ventilation controls with appropriate respiratory protection.

Good work practices can help to reduce hazardous exposures. Some recommendations are:

- Where possible, completely enclose operations and use local exhaust ventilation at the site of chemical release.
- Wear protective clothing and clean or dispose of it in accordance with manufacturers' recommendations. Do not store PPE or respiratory protection in spraying areas.
- Wash thoroughly and immediately after exposure to MDI.
- Post hazard warning information in the work area and regularly assess any potential impact on surrounding operations.
- Eye/Face/Body washes should be provided in the immediate work area for emergency use.
- Do not eat, drink or smoke where MDI is handled, processed, or stored.

All small high-hazard establishments are eligible for free consultation services provided by the CONN-OSHA Consultation Program. This program can help you evaluate your work practices, engineering controls, PPE, and employee exposure. If you would like more information about MDI, contact the CONN-OSHA office at (860) 263-6900, or visit the OSHA web site www.osha.gov.

If you would like to receive the *Quarterly* via e-mail, contact: catherine.zinsser@ct.gov. In the subject line type "subscribe" and in the body include the e-mail address to which you would like the *Quarterly* sent.

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Pickup truck beds are often protected with either a slide in bed liner or a liner that has been sprayed on. These spray-on polyurethane coatings are very popular due to their strength, abrasion, chemical and corrosion resistance, waterproof nature, and skid-resistant surface. However, they also contain toxic chemicals that need to be handled correctly during the application process.

It is common for small detailing shops to spray on truck bed liners. In 2003, a store manager in his mid-forties was spraying polyurethane coating on the floor and sides of a cargo van. This was the first van lining that was sprayed at this location. When finished, he turned off the spray liner mixer and walked to a side pedestrian door. The door was open and had a small portable fan to provide air circulation to the general shop area. He disconnected his airline from the respirator and proceeded to walk around the outside of the building to the front of the store where he collapsed.

A co-worker found him in respiratory distress and rushed him to the hospital. He was dead within the hour from an acute asthmatic reaction due to inhalation of chemicals. Spray-on truck bed liners contain a very toxic chemical, Methylene Diphenyl Isocyanate (MDI). As a liquid, MDI produces a vapor which is a potent respiratory sensitizer that also irritates the eyes, mucous membranes, and skin. It can also cause pulmonary edema.

The investigation determined that the building was not properly ventilated and that the employees had not been trained on the hazards of MDI. The victim had been previously exposed to high levels of MDI but did not recognize the exposure symptoms. He was also unaware that another exposure could increase his sensitivity to the chemical and could cause a severe allergic reaction. He was wearing the appropriate type of respirator for the task - a positive pressure respirator with supplied fresh air - but he had modified the respirator and was using an air hose that was too long. This modification would have voided the National Institute for Occupational Safety and Health (NIOSH) certification. This fatality may have been prevented if the following had been in place:

- Sufficient ventilation inside a spray room or booth,
- Respiratory protection that was properly used, and maintained. The respiratory protection selected must be certified by NIOSH,
- Adequate training of employees on the hazards of isocyanate exposure,
- Medical surveillance program for employees exposed to isocyanates.



CONN-OSHA ~ Training Update...

Breakfast Roundtable Discussion Group - Third Tuesday of every month These free 90-minute workshops discuss safety and health issues in a supportive and informal environment. The roundtable meetings are held from 8:15 am to 9:45 am. Pre-registration is required. *The location varies*, so be sure to call concerning the discussion subject and the location.

Recordkeeping OSHA 300 - April 28, 2006 The purpose of this workshop is to introduce the requirements and procedures related to the OSHA 300 Log. The presentation will cover the recording requirements, including a discussion of the employee/employer relationship, which pre-existing cases can be limited in the OSHA forms, and exceptions for some categories of injuries and illnesses.

Powered Industrial Trucks - May 2, 2006 and August 8, 2006 Learn how to meet OSHA's Powered Industrial Truck Standard, 29 CFR 1910.178. This 3-hour workshop introduces participants to OSHA's Powered Industrial Truck Standard and includes in-depth review of operator training. Safe work practices will be covered, as well as other topics not specifically addressed in the standard, including training tips and hazard recognition. Written handout materials will be provided to assist in the development of a site specific powered industrial truck training program.

Chemical Hazard Communication - June 6, 2006 The purpose of Hazard Communication (29 CFR 1910.1200), Right-to-Know, or HazCom as it is sometimes called, is very simple: Employees have *both* a need and a right to know the hazards and identities of the chemicals to which they are exposed and the necessary protective measures to prevent injury or illness. This session will help attendees develop an effective Hazard Communication Program.

Lockout/Tagout - The Control of Hazardous Energy Sources - July 11, 2006 The Occupational Safety and Health Administration (OSHA) has a standard for locking out and tagging out equipment. It is known as 29 CFR 1910.147, and it presents a minimum performance standard for the control of hazardous energy. This introductory class will take you through the various required sections of an effective written lockout/tagout program from beginning to end.

Classes are free and will be held at 200 Folly Brook Boulevard, Wethersfield, CT in Conference Room A from 9 am - 12 noon, unless otherwise noted. To register for any of these sessions, call John Able at (860) 263-6902 or send an email to able.john@dol.gov. **Pre-registration is required.** Visit www.ctdol.state.ct.us/osha/osha.htm for more training information.

Fatality & Casualty Reporting

Telephone Numbers:

(860) 263-6946 (local)
1-866-241-4060 (toll-free)