



Risk Management Solutions

A QUARTERLY NEWSLETTER OF THE ALABAMA MUNICIPAL INSURANCE CORPORATION
AND THE MUNICIPAL WORKERS COMPENSATION FUND, INC.

FALL 2002

Danger! Confined Spaces Danger! Harbor Hidden Hazards!

Overview of Confined-Space Hazards

The National Institute for Occupational Safety and Health (NIOSH) defines a confined space as one which, by design, has limited opening for entry and exit; unfavorable natural ventilation which could contain or produce dangerous air contaminants; and is not intended for continuous employee occupancy. Confined spaces include but are not limited to storage tanks, compartments of ships, process vessels, pits, silos, vats, wells, sewers, digesters, degreasers, reaction vessels, boilers, ventilation and exhaust ducts, tunnels, underground utility vaults and pipelines.

Confined spaces can be found in many industrial settings; from steel mills to paper mills; from shipyards to farms; and from public utilities to the construction industry. The hazards associated with confined spaces can cause serious injury and death to workers. Two major factors lead to fatal injuries in confined spaces: 1) failure to recognize and control the hazards associated with confined spaces, and 2) inadequate or incorrect emergency response. The emergency response is usually a spontaneous reaction to an emergency situation, and can lead to multiple fatalities.

Confined spaces may be classified into two categories: 1) open-topped enclosures with depths which restrict the natural movement of air (e.g., degreasers, pits, selected types of tanks and excavations), and 2) enclosures with limited openings for entry and exit (e.g., sewers, tanks and silos).

The hazards found in any confined space are determined by the



Enclosures with limited openings for entry and exit – such as tanks and silos – can hold many hidden hazards.



Depending on the material stored, toxic gases may be present in confined spaces. Oxygen deficiency is another associated danger.

material being stored or used; by the process taking place inside the space; and by the effects of the external environment. Worker entry into the confined spaces may occur during construction activities or during frequent necessary functions such as inspection, repair or maintenance. To further exemplify the hazards associated with confined spaces, some examples of atmospheric hazards are provided below.

Oxygen Deficiency

Oxygen deficiency occurs from chemical or biological reactions which displace or consume oxygen from a confined space. The consumption of oxygen takes place during combustion of flammable substances, as in welding, cutting or brazing. A more subtle form of consumption of oxygen occurs during bacterial action, as in the fermentation process. Oxygen may also be consumed during slow chemical reactions, as in the formation of rust on the exposed surface of metal tanks, vats and ship holds.

Ambient air has an oxygen content of 21 percent. When the oxygen level drops below 17 percent, the first sign of hypoxia is a deterioration of night vision, which is not usually noticeable. Physiological effects include increased breathing volume and accelerated heartbeat. Between 14 percent and 16 percent, physiological effects are increased breathing volume, accelerated heartbeat, poor muscular coordination, rapid fatigue and intermittent respiration. Between 6 percent and 10 percent, the effects are nausea, vomiting, inability to perform and unconsciousness. At

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Risk Management Guidelines for Public Entities and Contractor Operations

In the course of providing local government and services, public entities routinely depend upon relationships with contractors and subcontractors. During the formation of these relationships, agreements are made and frequently contracts are negotiated. In order to avoid, reduce or transfer the risk of loss, public entities should establish the following risk management activities:

1. Do not depend upon verbal agreements. Contracts entered into by public entities should be in writing. To ensure that contracts are valid, the proper authority should sign and execute them.
2. At a minimum, each public entity should obtain an indemnity/hold harmless agreement with contractors or subcontractors. A contract specialty attorney should review the contents of the agreement. The public entity should require the contractor or subcontractor to notify the public entity in writing of any subcontracted operations or services. The public entity must inform the contractor that it is the contractor's responsibility to ensure that all subcontractors comply with the specified insurance requirements and contract specifications as stated by the public entity. Information on standard contracts is available from the American General Contractors Association (AGC) Online Institute at www.agc.org. Information regarding standard contracts is accessible through the Products and Benefits section of the AGC website under Publications.
3. All public entities should require certificates of insurance from all contractors and subcontractors. Depending upon the scope of the contract this could involve proof of the following:
 - Workers' Compensation and Employer's Liability
 - Comprehensive General Liability Insurance
 - Business Auto Liability Insurance
 - Builders Risk
 - Performance Bond

The certificates of insurance should be verified for coverage dates and limits of liability. Limits of liability should be established according to each line of coverage required for the contract. It is suggested that the public entity require limits to be as high as the public entity's limits but not less than \$1 million for Commercial General Liability and Auto coverage.

4. A public entity should be an additional named insured under the contractor and/or subcontractor's policies. The public entity should receive the certificates of insurance before performance of the contract. All insurance policies should include a provision prohibiting cancellation of the policy except upon 30 days prior written notice to the public entity.
5. Before signing a contract for the work to be performed by the contractor, a public entity should ascertain that the contractor will adhere to safety and health requirements as specified by OSHA and other governing bodies. The contractor's interest, participation and level of involvement with safe work practices at the worksite should be evaluated. The public entity should know what controls the contractor has in place to prevent accidents and how they will respond in the event of an emergency. The contractor should take into consideration the safety and health of their employees and the public during the construction project for the public entities.

"Static" Fires

The Petroleum Equipment Institute is working on a campaign to increase awareness of fires as a result of "static" (that is, static electricity) at gas pumps. Below is some interesting information regarding these fires.

- 1) Out of 150 studied cases, almost all were women. (Most men never get back in their vehicle until completely finished – which is why they are seldom involved in these types of fires.)
- 2) Almost all cases involved the person getting back in their vehicle while the nozzle was still pumping gas. When finished, they went back to pull the nozzle out and the fire started as a result of static.
- 3) Most had on rubber-soled shoes.
- 4) There were 29 fires where the vehicle was reentered and the nozzle was touched during refueling from a variety of makes and models – some resulting in extensive damage to the vehicle, to the station and to the customer.
- 5) Seventeen fires occurred before, during or immediately after the gas cap was removed and before fueling began.

Vapors released from the gas are what cause the fire when connected with static charges. **NEVER** get back into your vehicle while filling it with gas. If you absolutely **HAVE** to get in your vehicle while the gas is pumping, make sure you get out, close the door – **TOUCHING THE METAL** – before you ever pull the nozzle out. This way the static from your body will be discharged before you ever remove the nozzle. Don't ever use cell phones when pumping gas.

For more information on static fires, visit the Petroleum Equipment Institute's website at www.pei.org. Click in the center of the screen where it says "Stop Static".

This information is especially important for people who have children in the vehicle while pumping gas. If a "static" fire were to occur, they may not be able to get the children out in time.

*To schedule the Firearm
Training System (FATS) in
your area, or for information
regarding the next
Proactive Driver Training
workshop, contact the Loss
Control Division at
334-262-2566.*



Confined Spaces

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concentrations less than 6 percent, there is a rapid loss of consciousness, and *death in minutes*.

Oxygen Displacement: Inert Gases and Simple Asphyxiants

A simple asphyxiating atmosphere contains a gas or gases that are physiologically inert and which do not produce any ill effects on the body. However, in sufficient quantity, a simple asphyxiant will displace oxygen and may result in an atmosphere unable to support respiration. The ambient, or normal, atmosphere is composed of approximately 21 percent oxygen, 78 percent nitrogen and 1 percent argon with small amounts of various other gases. For example, if 100 percent nitrogen – a non-toxic, colorless, odorless gas – is used to inert (displace oxygen in) a confined space, it will cause *immediate* collapse and death to the worker if the confined space is not adequately ventilated before worker entry. Other examples of simple asphyxiants which have claimed lives in confined spaces include carbon dioxide, argon, and helium.

Flammable Atmospheres

A flammable atmosphere generally results from vaporization of flammable liquids, by-products of chemical reaction, enriched oxygen atmospheres or concentrations of combustible dusts. Three components are necessary for an atmosphere to become flammable: fuel and oxygen will vary from gas to gas within a fixed range and is referred to as the lower flammability limit (LFL) and upper flammability limit (UFL).

These terms are synonymous with the lower explosive limit (LEL) and upper explosive limit (UEL). For example, the explosive range for methane is between 5 percent and 15 percent in air. Concentrations below 5 percent methane are below the explosive range, and concentrations about 15 percent are too rich to support combustion. A confined space may dilute the methane in the air, taking it into the explosive range.

Toxic Gases

Toxic gases may be present in confined spaces because:

1. The manufacturing process uses toxic gases. For example, in producing polyvinyl chloride, hydrogen chloride is used, as well as vinyl chloride monomer.

2. There are biological or chemical processes occurring in the product stored in the confined space. For example, decomposing organic material in a tank or sump can liberate hydrogen sulfide.

3. The operation performed in the confined space can release a toxic gas. For example, welding can release oxides of nitrogen, ozone and carbon monoxide.

Some toxic gases such as phosgene or carbon monoxide are particularly treacherous because of their poor warning properties. Toxic gases which have been reported to cause death in workers in confined spaces include carbon monoxide, hydrogen cyanide, hydrogen sulfide, arsine, chlorine, oxides of nitrogen and ammonia.

Toxic gases may be evolved when acids are used for cleaning the interior of a confined space. For example, hydrochloric acid can react chemically with iron sulfide to produce hydrogen sulfide. Hydrogen sulfide is heavier than air and will settle out at the bottom of a confined space. Hydrogen sulfide is extremely toxic and exposure can cause paralysis of the olfactory system (making the victim unable to smell the gas), loss of reasoning, respiratory failure, unconsciousness and death.

Conclusion

Hazards related to confined spaces are not limited to those discussed here. The hazards and their conditions are subject to change – sometimes very rapidly – creating special concerns. **Entry into a confined space should be planned and carried out by trained personnel only.**

This article **IS NOT** a comprehensive outline of dangers associated with confined spaces. Instead, it is intended to be a brief overview of some of the deadly dangers found within confined spaces. *Extreme caution should be used in every situation involving a confined space.* For more information on this subject, please contact your loss control representative at **334-262-2566**. ■

2003 CLEEP Course Schedule

The Certified Law Enforcement Executive Program (CLEEP) is open to all active full-time police chiefs in Alabama who are members in good standing in the Alabama Association of Police Chiefs. CLEEP is also open to all executive level administrators upon approval by the Chief. Courses for 2003 include:

January 23-24, 2003

- Coaching
- Counseling, Performance Appraisal and Effective Discipline
Troy State University Dothan
Dothan, Alabama

February 13, 2003

- Alabama Police Chiefs' Conference
- Dealing Effectively with the External Environment
Montgomery, Alabama

April 17-18, 2003

- Media Relations
- Operational Crisis Management and Incident Command
University of North Alabama,
Florence, Alabama

May 22, 2003

- Alabama Police Chiefs' Conference
- Effective Management and Supervisory Techniques for the Police Executive
Dothan, Alabama

July 17-18, 2003

- New Chiefs' Development Seminar (16 hours)
Jacksonville State University,
Jacksonville, Alabama

August 14, 2003

- Alabama Police Chiefs' Conference
- Diversity: Understanding People and Cultures
Auburn, Alabama

November 13-14, 2003

- Understanding and Developing Your Leadership Style
- Police Leadership: Managing for the Future
Troy State University Dothan
Dothan, Alabama

88 Total Hours

For more information about CLEEP, contact Ann Wells at Jacksonville State University, 1-800-634-7199, ext. 5919; awells@jsucc.jsu.edu.

Workers Comp Premium Discounts Available for 2003

For the past several years, the Municipal Workers Comp Fund (MWCF) has made a 3 percent premium discount available to those members who appoint a Safety Coordinator and agree to adhere to certain safety guidelines. These guidelines are specified in a two page document titled *The Statement of Commitment*. This statement is updated annually and mailed out to each member of MWCF every November. It must be filled out, signed, dated and returned by December 1st so that the discount will be reflected on the 2003-2004 billings which will be mailed in December. Of the 585 current members of MWCF, 328 or 56 percent of the membership signed a *Statement of Commitment* for 2002.

In addition to the *Statement of Commitment*, the Municipal Workers Comp Fund provides an additional 3 percent discount for those members that commit to a Post Accident Drug and Alcohol Testing program. In order to qualify a member must sign a "Participating Commitment" which will be enclosed with the above mentioned document and have such program certified by their attorney that the member's drug and alcohol policy is Fourth Amendment compliant. For the past year, 277 members or 47 percent took advantage of this discount.

Another 3 percent discount is available to those members who establish and implement a Medical Protocol. This program is a great benefit to both the member and the claims management team. For the current year, 104 members have taken advantage of this program. For further information regarding this discount, call Tom Roper at Millennium Risk Managers at **1-888-736-0210**.

It is evident that those members who have promoted and implemented these safety standards have received substantial benefits in the form of reduced premiums as well as having fewer claims. All members are encouraged to watch for the *2003 Statement of Commitment, Post Accident Drug Testing Agreement* and Medical Protocol information coming to you in November and return it promptly to take advantage of these benefits. ■

EMPLOYMENT PRACTICES LAW HOTLINE

1-800-864-5324



Through a toll-free Employment Practices Law Hotline, members can be in direct contact with an attorney specializing in employment-related issues. When faced with a potential employment situation, the hotline provides a no-cost, 30 minute consultation.

Popular Safety Videos Available to Members

- Static Electricity (12.011)
- Permit Required Confined Space (7.030)
- Confined Space Ventilation (14.002)
- Confined Space Rescue (14.003)
- Confined Space Hotwork (14.004)
- Confined Space Entry (14.005)
- Driving Safety (5.048)
- Winter Driving (5.046)
- Safe Driving (5.033)
- Space Heaters (7.044)
- When Lightning Strikes (7.052)

To check-out a safety video, simply call, FAX, or e-mail your request to Rachel Wagner at: **334-262-2566; rachelw@alalm.org; or FAX at 334-263-0200.**



For more information, call:
334-262-2566.



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