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Safety Meeting

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Tragedy lurks in confined spaces

People die every year in confined spaces. Frequently, the result is multiple fatalities.

A confined space is commonly defined as an enclosed or partially enclosed area that is large enough for a person to enter but is not designed to be occupied regularly.

Confined spaces might contain hazardous atmospheres, including insufficient oxygen, toxic air or an explosive atmosphere. These spaces also might have physical hazards that could result, for instance, in workers falling, being crushed or buried or drowning.

Examples of confined spaces include water and sewer pipes, storage tanks, silos, utility tunnels, pumping stations, crawl spaces under floors, manholes, water reservoirs, boilers, tunnels, holding tanks, vats, tanks, pits, kilns, sumps and vaults.

There is a potential for tragedy when:

- Entering a tank without testing or assesment of the risks.
- Entering a confined space before ventilating it.
- Using an inert gas to force a liquid out of a tank.
- Using welding hoses and valves without periodically checking for leaks.
- Using oxygen to ventilate the space.
- Not knowing properties of the chemical that was in the tank previously.
- Not using proper respiratory protection.
- Not checking processes in the vicinity of the space for possible release of toxic or flammable substances.
- Welding in a tank without checking neighboring compartments.
- Not blocking or locking out.
- Leaving a space that has been tested safe for entry and re-entering it later without retesting it.
- Using improper rescue procedures.

All confined spaces must be assessed carefully to identify every hazard. These assessments must be done by a qualified person familiar with the confined space and the work to be done in it.

As part of an organization's confined space control program, the results of these tests are recorded on an entry permit (if such is required for the space involved) along with the equipment or methods that were used in performing the tests.

In addition to hazard assessment, an entry permit system is used to ensure that necessary measures are put into place for the protection of personnel involved in confined space work.

The entry permit also should contain such information as the length of time for which it is valid, the names of workers authorized to enter the confined space, the work that is to be done in it, the means of communication between them and the attendant (safety watch), and the procedures and equipment to be used by any person who responds to emergency situations in the confined space.

Appropriate training is essential for working safely in confined spaces. Every worker who enters one must know:

- How to recognize and identify potential hazards associated with the space.
- Evaluation and control procedures for the identified or potential hazards.
- Set-up, use and limitations of all equipment involved, such as ventilation, hazardous energy control, isolation and lockout equipment and air quality monitors .
- Set-up, use and limitations of all personal protective equipment, such as full-body harness and respirator, that he or she will be using.
- All safe work procedures outlined in the employer's confined space hazard assessment and control program.
- Procedures to follow in the event of a situation that could present additional risk to the worker or an emergency.

The Quiz

These questions are meant to help you remember what was discussed today — not to test your patience or challenge your intelligence. The answers are at the bottom of the page. Cover them up, and complete the quiz as quickly as you can.

1. Confined space fatalities often involve more than one victim.
   TRUE ____ FALSE ____

2. Are some confined spaces capable of human occupancy for long periods of time?
   YES ____ NO ____

3. Which of these are among examples of confined spaces:
   A. Water and sewer pipes.
   B. Silos.
   C. Storage tanks.
   D. Boilers.
   E. All of the above.

4. Welding hoses being used in a confined space do not require more than one inspection for leaks.
   TRUE ____ FALSE ____

5. Who must conduct a hazard assessment for any confined space at a worksite:
   A. Government health and safety inspectors.
   B. Qualified personnel familiar with the space and the work to be done in it.
   C. Any worker who will be in the space.
   D. Independent consultants.

6. An entry permit system helps ensure that necessary measures are put into place for the protection of personnel involved in confined space work.
   TRUE ____ FALSE ____

7. Which of these should be contained on a confined space entry permit:
   A. Length of time for which the permit is valid.
   B. Names of workers authorized to enter the confined space.
   C. Procedures and equipment to be used by any person who responds to emergency situations in the confined space.
   D. All of the above.

8. Does your workplace have written safe procedures in place for confined spaces you might encounter?
   YES ____ NO ____ DON'T KNOW____

ANSWERS: 1. True, 2. Yes., 3. E., 4. False, 5. C., 6. True, 7. D., 8. Your answer

Hold These Thoughts

If a situation arises where there is a hazardous condition and the worker does not leave or is unable to leave the confined space, rescue procedures should be begin immediately.

The attendant (safety watch) should be qualified in confined space rescue procedures and be available immediately outside the confined space to provide emergency assistance if needed. This person should be familiar with the structural design of the confined space and be in constant communication with the worker inside the confined space.

He or she also will:

- Have an alarm to call for help.
- Have all required rescue equipment available and be trained in its use.
- Hold a basic first aid certificate.
- Be able to perform cardiopulmonary resuscitation (CPR).

The detailed plan for emergency response to an injury or other emergency within the confined space should be described in detail in the organization's confined space hazard assessment and control program.

Victims should be rescued from outside the confined space, if possible. No other worker should enter a confined space to attempt a rescue unless that person is fully trained in the rescue procedures and is wearing the appropriate personal protective equipment. Another worker qualified in confined space rescue procedures must be present outside the confined space before the first rescuer enters the confined space. Rescuers should not use the same air as the confined space workers they are rescuing but should wear self contained breathing apparatus (SCBA) or supplied air respirator with an escape bottle.

For the Record

Date of Meeting: _____ Topic: _____
Location: _____ Department:_____
Start Time: _____ Finish Time: _____ Meeting Leader: _____

In Attendance:

It really happened...

One worker died and a second was severely injured in an explosion and fire inside a confined space. The first worker was inside a water cistern applying a flammable, waterproof coating. The only access was through a vent opening at the top.

The second worker was near the opening when the explosion occurred, knocking him off the roof. He suffered third-degree burns to his face, ears and hand. The worker inside the cistern suffered third-degree burns to much of his body and later died.

Investigation revealed inadequate ventilation to control the flammable vapors generated and a lack of safe work procedures for confined space entry. Static electric discharge most likely ignited the flammable vapors.

Safe work practices:

- Use hazardous products according to safety data sheets and manufacturers' instructions.
- Employers must prepare, and workers must follow, work procedures based on manufacturers' instructions and occupational health and safety regulations. This requires employers to identify work areas that are confined spaces and conduct a hazard assessment for each to determine potential hazards.
- A written confined space entry program must be prepared before a worker enters a confined space and workers must be trained in safe procedures specific to the activity to be done in the confined space.