TITLE: 2157 CONFINED SPACES AND THE ENTRY PERMIT SYSTEM

LENGTH: 20 MINUTES **PRODUCTION YEAR: 2002**

PROGRAM SYNOPSIS:
Employees must sometimes work in areas which have configurations that don't allow for regular safety precautions. In these spaces employees may be forced to work very close to hazards. Proper guarding may not exist to prevent falls and the air may be toxic or explosive. In addition, such an area may not have an easy way to exit should an emergency arise. These types of work areas are called confined spaces and learning how to safely work in these spaces is the purpose of this program.

Topics of the video include the definition of a confined space, the written confined space entry program, the difference between permit and non-permit required spaces, confined space hazards and the entry permit system. Also covered are the responsibilities of each of the confined space entry team members: the entry supervisor, the standby attendant and the entrants.

SHOOTING LOCATION: A variety of industrial environments with tanks, silos, pits, vessels and other confined spaces.

PROGRAM COMPONENTS: Videotape and leader's guide

PROGRAM OBJECTIVES: After watching the program, the participant will be able to explain the following:
- The definition of a confined space and the difference between a permit and non-permit required space;
- Atmospheric and other hazards that present dangers to confined space entrants;
- The details of the confined space entry permit system;
- The responsibilities of the entry team members: the entry supervisor, the standby attendant and the entrants.

INSTRUCTIONAL CONTENT:

DEFINITION OF A CONFINED SPACE

- The term "confined space" is more than just a description of an awkward work area, it's a term developed by the Occupational Safety and Health Administration (OSHA) to define specific types of work areas.
- A confined space is any space that meets the following conditions: 1) the space is not designed for continuous occupancy; 2) it is large enough for an employee to enter and perform work; and, 3) it has limited means of entry and exit.
- Some common types of confined spaces include pits, silos, tanks, pipes and vessels. While they come in various sizes and configurations, confined spaces all have one thing in common: they can be very dangerous.

THE WRITTEN CONFINED SPACE ENTRY PROGRAM

- Many deaths and injuries have occurred in confined spaces when workers failed to recognize the presence of potential hazards and did not take the appropriate measures to protect themselves.
- To help protect workers from the hazards of working in confined spaces, the company has developed a written confined space entry program. This program is available for employee review and is based on the confined space regulations developed by OSHA.
- As part of the written plan, the company has evaluated and identified all confined spaces on site and maintains a list of them in the written plan.

PERMIT AND NON-PERMIT REQUIRED CONFINED SPACES

- Confined spaces are generally classified in one of two ways: permit required confined spaces and non-permit required confined spaces.
- Spaces classified as non-permit confined spaces do not have the potential to contain serious hazards and no special procedures are required to enter them.
- Permit required confined spaces have the potential to contain serious safety and health hazards.
- As the name implies, permit required confined spaces require a written permit to be issued and specific procedures to be followed before entry is allowed.
- Under certain specific conditions outlined in the company's written plan, a permit required confined space can be downgraded to a non-permit space. This is limited to spaces that have no atmospheric hazards and all other hazards are eliminated or controlled without entering the space.

ATMOSPHERIC HAZARDS

- While every permit required confined space is unique, they may share some common hazards.
- One common hazard is the potential for the air inside the space to be hazardous. This condition is referred to as an atmospheric hazard.
- For example, if the oxygen level of the air is below 19.5 percent, there is not enough oxygen available for effective breathing. This is referred to as an oxygen-deficient atmosphere.
- When the air contains oxygen levels above 23.5 percent, the air becomes flammable and any source of ignition could cause a flash fire or explosion. This is referred to as an oxygen-rich atmosphere or an explosive atmosphere.
- Explosive atmospheres are also created when any flammable gas, vapor or mist exceeds 10 percent of its lower explosive limit. In addition, combustible dusts such as grain or cement can also create an explosive atmosphere.
- Atmospheres are also considered hazardous when the presence of toxic substances above the permissible exposure limits could result in employee exposure.
- When an atmosphere is so hazardous that it poses an "immediate danger to life and health," it is referred to as an IDLH atmosphere.
- For example, in a process called inerting, a noncombustible gas such as nitrogen is pumped into a space to displace an explosive atmosphere.
- While controlling the explosion hazard, this process also displaces all oxygen and creates an IDLH oxygen-deficient atmosphere.

OTHER CONFINED SPACE HAZARDS

- Because most confined spaces are part of working systems and processes, they may contain mechanical or electrical hazards related to its normal operation.
- Moving parts such as mixing or cutting blades, rotating shafts or other items are highly dangerous to confined space entrants.
- In addition, some spaces may contain engulfment hazards. Engulfment hazards exist when materials could be released into the space, covering the occupants.
- Another type of hazard is caused by the design of some confined space vessels. Sloping walls and floors present serious danger to personnel who may become trapped in tight spaces.
- These are just a few of the hazards which may be found in confined spaces. The company's entry permit system ensures these types of hazards are controlled during every entry operation.

THE ENTRY PERMIT SYSTEM

- The company's entry permit system is a system used to control confined space hazards and ensure worker safety during the entry process.
- The written entry permit contains information necessary for a successful entry and includes the following information:

a) the identity of the space to be entered (entering the wrong space can be a fatal mistake);
b) a list of personnel involved in the entry process and their responsibilities;
c) a listing of any potential hazards contained in the space as well as the specific testing and isolation measures required to control them;
d) the acceptable conditions for entry and the results of any atmospheric testing used to certify the space as safe to enter; and,
e) a listing of any specific personal protective equipment, specialized tools or rescue devices that are required for the operation at hand.

- The personnel involved in the entry process are referred to as the entry team. Each member of the team must sign the permit to indicate they know and understand the information it contains.

THE ENTRY TEAM

- Entering a permit required confined space is a team effort and each team member has specific duties. The entry team consists of the entry supervisor, the attendant and the entrants.

The Entry Supervisor

- The written permit serves as a checklist for safe entry operations and the entry supervisor makes sure the process is followed.
- The entry supervisor makes sure all appropriate notations have been made on the permit and that all atmospheric testing specified by the permit has been conducted.
- To control electrical, mechanical or engulfment hazards, isolation procedures such as lockout/tagout may be required. When this is the case, the entry supervisor must verify these procedures have been completed.
- The entry supervisor is also responsible for making sure any required protective equipment, tools or rescue devices are on hand before entry.
- The entry supervisor must confirm the availability of the rescue service and verify the means to summon them is working properly.
- After satisfying all pre-entry conditions listed on the permit, the entry supervisor must sign the permit indicating he has approved the entry to begin.
- At appropriate intervals during the entry process, the entry supervisor must confirm that the entry remains consistent with the terms of the entry permit.
- Should the entry supervisor determine that any part of the entry process has fallen outside the requirements of the entry permit, he must cancel the permit and the space must be evacuated.

The Attendant

- The attendant, sometimes called the standby attendant, acts as the eyes and ears of the entry process, monitoring conditions both inside and outside the space as well the condition of the entrants.
- During the entry process, the attendant must maintain an accurate count of the entrants inside the space and be able to accurately identify who is inside the space at any time.
- The standby attendant must also be fully trained as an entrant. This ensures he knows and understands what the entrants are encountering while inside the space.
- To properly monitor the entry conditions, the attendant must maintain contact with the entrants. This contact, which may be visual or by sound, allows either the entrant or the attendant to call for an immediate evacuation of the space when necessary.
- The attendant should call for an evacuation anytime conditions prohibited by the entry permit are detected or when an entrant exhibits behavioral symptoms that indicate a possible dangerous condition.
- Once the entrant determines an entrant must be evacuated, he must notify all other entrants to evacuate as well.
- If an entrant becomes incapacitated and cannot evacuate the space on his own, the attendant should immediately call the rescue service for assistance to conduct a non-entry rescue.
- A non-entry rescue means using external means, such as a lifeline attached to a harness, to remove the entrant from the space.
- Although the attendant is fully trained as an entrant, the attendant may not enter the confined space while attempting a rescue.
- If a non-entry rescue is not possible, the attendant must remain outside the space and keep other personnel from entering the space until the rescue service arrives.

Entrants

- Confined space entrants are the only ones authorized to enter the space.
- Like all team members, entrants must know and understand any potential hazards they may face during the entry process and be familiar with the warning signs and symptoms of exposure to dangerous conditions.
- Entrants may request to observe any atmospheric testing used to certify the space as safe to enter.
- Once inside, the entrant must maintain communications with the standby attendant so the attendant can monitor his condition and the status of the operation.
- Should the attendant or entry supervisor call for an evacuation, the entrant must immediately exit the space.
- The entrant also has a responsibility to monitor the conditions inside the space and call for an evacuation anytime he discovers a condition prohibited by the permit or recognizes any warning signs or symptoms of exposure to hazardous conditions.
- Each member of the entry team has a specific role to play in the entry process. By following the requirements of the entry permit system, the entry team is able to work safely in confined spaces.