

HIGH-IMPACT *Life And Death Series* **CONFINED SPACE ENTRY**

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation. Featured are:

INTRODUCTION: A brief description of the program and the subject that it addresses.

PROGRAM OUTLINE: Summarizes the program content. If the program outline is discussed before the video is presented, the entire program will be more meaningful and successful.

PREPARING FOR AND CONDUCTING THE PRESENTATION: These sections will help you set up the training environment, help you relate the program to site-specific incidents, and provide program objectives for focusing your presentation.

REVIEW QUESTIONS AND ANSWERS: Questions may be copied and given to participants to document how well they understood the information that was presented. Answers to the review questions are provided separately.

ATTENDANCE RECORD: Document the date of your presentation and the instructor as well as names of the program participants. The attendance record may be copied as needed.

INTRODUCTION

The hazards we encounter while working in confined spaces are capable of causing illness, bodily injury or death. Your company's confined space entry program is designed to protect everyone at your facility from these hazards, but like all lifesaving procedures, they must be followed faithfully at all times to be effective.

This program opens with an emergency situation because something has gone wrong in the tank where two maintenance mechanics are working. The attendant calls the rescue team and then makes the bad decision to enter the space and attempt to rescue the entrants. Viewers will then see the results of this decision and other procedural mistakes as the rescue team attempts to recover all three people inside the space.

Training topics of the video include duties and responsibilities of each participant in confined space entry: the entrant, the attendant and the entry supervisor. Other topics include the entry permit system, duties of rescue team members, air testing and monitoring, lockout and line breaking procedures and use of personal protective equipment in confined spaces.

PROGRAM OUTLINE

Louis Acosta, the attendant at the confined space entryway, becomes frantic after he has lost communication with the two entrants in the space. The entrants, Earl Swinger and Mattie Rourk, were replacing a motor in tank #5. Louis calls the rescue team on his handheld intercom. Worried that his friends are in danger, Louis doesn't wait for the rescue team to arrive and goes into the space after Earl and Mattie. Shortly thereafter, an explosion erupts inside the space.

The rescue team members, Richard, Al and Sherry, meanwhile, gather their PPE and other rescue equipment and proceed to the entryway of the space. Richard serves as attendant while Sherry enters the space in an attempt to rescue the three occupants. Sherry emerges from the space and informs Richard that the explosion has caused a large pipe to block the entrance to the valve room, preventing Al and her from reaching the three occupants. Al gets a torch to cut away sections of the pipe while Richard summons a co-worker to bring a crane for removing the sections.

After lowering an air monitor in the space to determine any atmospheric hazards, the members of the rescue team check the entry permit in an attempt to discover what could have gone wrong. The permit tells them that James Andrews is the entry supervisor and he arrives at the scene after receiving a page. He informs the members that a backhoe operator has broken a water main and possibly a power cable and gas line.

Richard tells James that the air monitor indicates that the amount of oxygen in the space is low and that gas may be present. Al and Sherry check the entry permit to determine if all measures were taken to isolate the hazards of the space. They discover that the valve to the gas line had been turned off and tagged, but the procedure required it to be broken and blanked off. James states that Mattie told him that she had blanked it off, but he had failed to verify this procedure as was his responsibility.

A maintenance crew is called to blank off the gas line as Al prepares to enter the space to cut away the sections of pipe. In the meantime, Al is contacted by intercom from inside the space by someone he can't identify because of the static in the handheld intercom. The person tells him that water is beginning to enter the space. After a maintenance crew blanks the gas line, Al enters the space to cut away the pipe.

After the pipe has been removed from the space, Al and Sherry attempt to rescue the occupants. Richard and James meanwhile discover from the schematic plans of the space that a main gas line runs through the space and the explosion could cause it to leak at any time. The air monitor also indicates that a purging gas is present and the oxygen level in the space is at 15 percent. Sherry has already informed them that water is quickly filling the space. For these reasons, Richard decides to have Al and Sherry evacuate the space until these problems are secured. At that moment, Sherry locates an injured Mattie on the floor of the space and Richard allows the rescue operation to continue.

Al and Sherry move Mattie to the bottom of the entrance and she is removed from the space. The two rescuers go back after the other two. Sherry then finds Louis, who has drowned in a pool of the incoming water. Realizing that oxygen levels are getting low and time may be running out, she and Al leave Louis's body and try to find Earl. In another area of the space, they locate Earl unconscious and bleeding but still alive.

After Sherry tells Richard that Earl is still alive, Richard turns over his attendant duties to James and enters the space to assist the rescuers. He knows that the oxygen level in the space is dangerously low. He wears an air pack and carries an emergency air bottle for Earl to use. Meanwhile, Sherry has addressed Earl's injury and prepares to help move him out of the space. Al, Richard and Sherry then carry Earl to the bottom of the entrance to the space, hook him up and he is then lifted to safety.

IMPROPER CONFINED SPACE ENTRY PROCEDURES

Mistake #1:

Mattie Rourk failed to follow proper lockout/tagout and line breaking procedures when she didn't break and isolate the gas line. The defective valve leaked into the area, allowing the gas to collect and explode.

Mistake #2

James Andrews, the entry supervisor, neglected his job responsibilities when he failed to verify that all procedures, including lockout and line breaking, were done correctly. He also didn't check other activities in the area that might jeopardize the entry.

Mistake #3:

Against all of his training, Louis Acosta, the attendant, failed to remain at his post and entered the confined space. While he had the best of intentions, this mistake cost him his life.

TRAINING TOPICS

BACKGROUND

- Even when entry procedures are followed properly, all confined spaces are potentially hazardous.

- These spaces are large enough and so configured that you can get into them to perform a task, but confined spaces have restricted means of entry and are not designed for continuous human occupancy.

THE ENTRY PERMIT

- The entry permit contains information pertaining to a particular space and is issued through the permit system found in the company's permit-required confined space program.
- Important information found on the permit includes the following:
 - a) the permit space to be entered;
 - b) the date and authorized duration of the entry permit;
 - c) the names of the entrants and attendants (or other means to identify these individuals); and,
 - d) the name of the entry supervisor.
- Before entry may begin, the supervisor and other participants must sign the permit. The supervisor's signature indicates all permit conditions have been met and that the space is safe to enter.

THE CONFINED SPACE ENTRANT

- All those employees authorized to enter a space must know and understand the hazards that they may face during entry. This includes information on how they may be exposed and what the signs, symptoms and consequences of an exposure may be.
- Entrants must also know and understand how to use all necessary entry equipment, including PPE and equipment used for testing, monitoring, ventilating and lighting the space.
- One of the most important safety concerns of an entrant is the ability to maintain contact with the attendant.
- This contact, which may be visual or by sound, allows the entrant to alert the attendant in case the need to evacuate arises.
- If the attendant recognizes a warning sign or other symptom of a potentially dangerous situation, the entrant will be notified and must exit immediately.

THE CONFINED SPACE ATTENDANT

- One of the most important duties the attendant performs is to monitor the entrants. The activities and hazards in the space should be continuously monitored in case conditions change in the space that may make it unsafe for the entrants.
- The attendant must know and understand all hazards in the space and what the signs, symptoms and consequences of exposure are.
- The attendant should never enter the space unless he has been relieved by another qualified person.
- If the attendant discovers the space is no longer safe for occupancy, he must notify all entrants and prepare for evacuation.
- Another responsibility of the attendant is to keep unauthorized personnel a safe distance away from the entryway.
- Once it has been determined that the entrant is in trouble and needs assistance, the attendant must call emergency services.

- Upon notifying emergency services, the attendant must remain at the entryway. The attendant should not attempt a rescue or allow any unauthorized person to do so.

THE ENTRY SUPERVISOR

- The entry supervisor must verify that rescue services are available for each operation and that the means to contact them are available.
- Should the entry supervisor decide to enter the space, he must know and understand the hazards present and the signs, symptoms and consequences of exposure.
- The entry supervisor must determine that the entry operation remains consistent with the terms of the permit and how to cancel or terminate the entry permit when conditions are no longer acceptable.
- The entry supervisor must check to see that all the appropriate entries have been made on the permit, that all tests specified on the permit have been conducted and that all procedures and equipment specified by the permit are in place before signing the permit and allowing entry to begin.

THE EMERGENCY RESCUE TEAM

- Rescue team members, just like all persons who enter confined spaces, must be trained and authorized. They must also have additional training in CPR and lifesaving rescue procedures.
- Rescue personnel must also have specific training in confined space rescue procedures appropriate for each space they must enter. Training must take place in the actual spaces or in similar ones.
- Members of the rescue team may help assess an emergency situation by looking at the entry permit for clues about what may have gone wrong.
- The rescue team uses the entry permit to verify the safety procedures that were put in place to keep from endangering the lives of those inside the confined space. These include measures that were used to isolate, block, eliminate or control permit space hazards.

PREPARE FOR THE SAFETY MEETING OR TRAINING SESSION

Review each section of this Leader's Guide as well as the videotape. Here are a few suggestions for using the program:

Make everyone aware of the importance the company places on health and safety and how each person must be an active member of the safety team.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Copy the review questions included in this Leader's Guide and ask each participant to complete them.

Copy the attendance record as needed and have each participant sign the form. Maintain the attendance record and each participant's test paper as written documentation of the training performed.

Here are some suggestions for preparing your videotape equipment and the room or area you use:

Check the room or area for quietness, adequate ventilation and temperature, lighting and unobstructed access.

Check the seating arrangement and the audiovisual equipment to ensure that all participants will be able to see and hear the videotape program.

Place or secure extension cords to prevent them from becoming a tripping hazard.

CONDUCTING THE PRESENTATION

Begin the meeting by welcoming the participants. Introduce yourself and give each person the opportunity to become acquainted if there are new people joining the training session.

Explain that the primary purpose of the program is to remind employees about the dangers of confined space entry and to show viewers the catastrophic consequences that can result when entry procedures are not followed completely.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Lead discussions about specific confined space entry procedures at your facility. Use the review questions to check how well the program participants understood the information.

After watching the videotape program, the viewer will be able to explain the following:

- How mistakes made in confined space entry procedures can result in tragic injuries and deaths;
- What the specific duties of the entrant, attendant and entry supervisor are;
- What information is contained in the entry permit and why it is vital for safe entry and rescue operations;
- What is required of emergency rescue team members.

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REVIEW QUESTIONS

Name _____ Date _____

The following questions are provided to check how well you understand the information presented during this program.

1. Even if all entry procedures have been followed properly, all confined spaces are potentially hazardous.
 - a. true
 - b. false

2. Who is responsible for calling rescue services in the event of an emergency?
 - a. the entrant
 - b. the attendant
 - c. the entry supervisor

3. Constant contact between the entrants and the attendant is not necessary if both the attendant monitoring the space and the entrants find no hazards present.
 - a. true
 - b. false

4. The only time an attendant may enter a confined space is _____.
 - a. when it is taking a long time for rescue personnel to arrive
 - b. when he can see the entrant's entire body from the entryway
 - c. when another qualified person assumes his attendant duties
 - d. none of the above

5. In the video, what was the critical error made by James Andrews, the entry supervisor?
 - a. he entered the space without an attendant present
 - b. he didn't provide the participants with proper communication devices
 - c. he didn't know how to cancel the entry permit
 - d. he failed to verify that Mattie had successfully blanked the gas line

6. Rescue team members are required to receive all of the same training that confined space entrants must receive.
 - a. true
 - b. false

7. Who's signature on the entry permit indicates that all hazards have been secured and that the space is safe to enter?
 - a. the plant manager
 - b. the attendant
 - c. the entry supervisor
 - d. the entrant who secured the hazards

8. Which of the following is not a requirement of a confined space entrant?
 - a. to know how to recognize an exposure to hazards and its consequences
 - b. to maintain contact with the attendant at all times
 - c. to know how to use testing, monitoring and ventilating equipment
 - d. to evacuate all unauthorized persons who enter the space

ANSWERS TO THE REVIEW QUESTIONS

1. a

2. b

3. b

4. c

5. d

6. a

7. c

8. d