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Objectives

- After this module you should be able to
 - identify the most common confined space hazards
 - take the necessary steps to avoid those hazards

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What is a Confined Space?

- A confined space is a space that
 - is large enough for a person to enter and work
 - has limited or restricted means of entry and exit
 - is not designed for continuous occupancy

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Permit-Required Confined Space

- A permit-required confined space has at least one of the following characteristics
 - contains or has the potential to contain a hazardous atmosphere
 - contains a material that has the potential to engulf an entrant
 - has an internal configuration such that an entrant could be trapped or asphyxiated
 - contains any other recognized serious safety and health hazard

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Confined Space Hazards

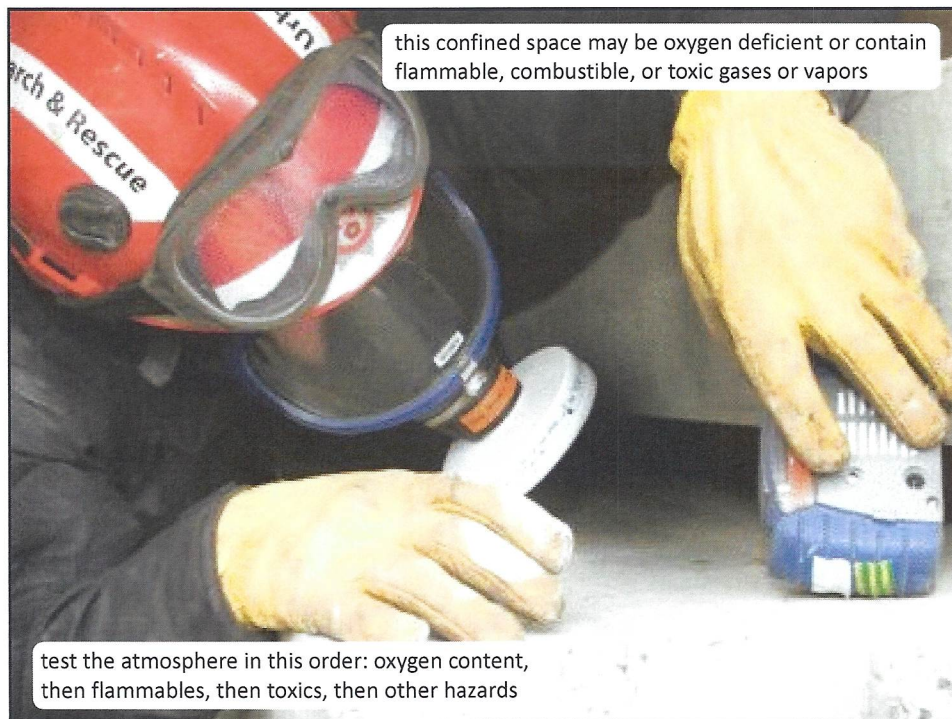
- Oxygen deficiency
- Flammable/combustible gases and vapors
- Toxic gases
- Engulfment in solid or liquid
- High noise levels
- Grinding, crushing, or mixing mechanisms
- Configuration
- Extreme temperatures
- Chemicals
- Lack of lighting

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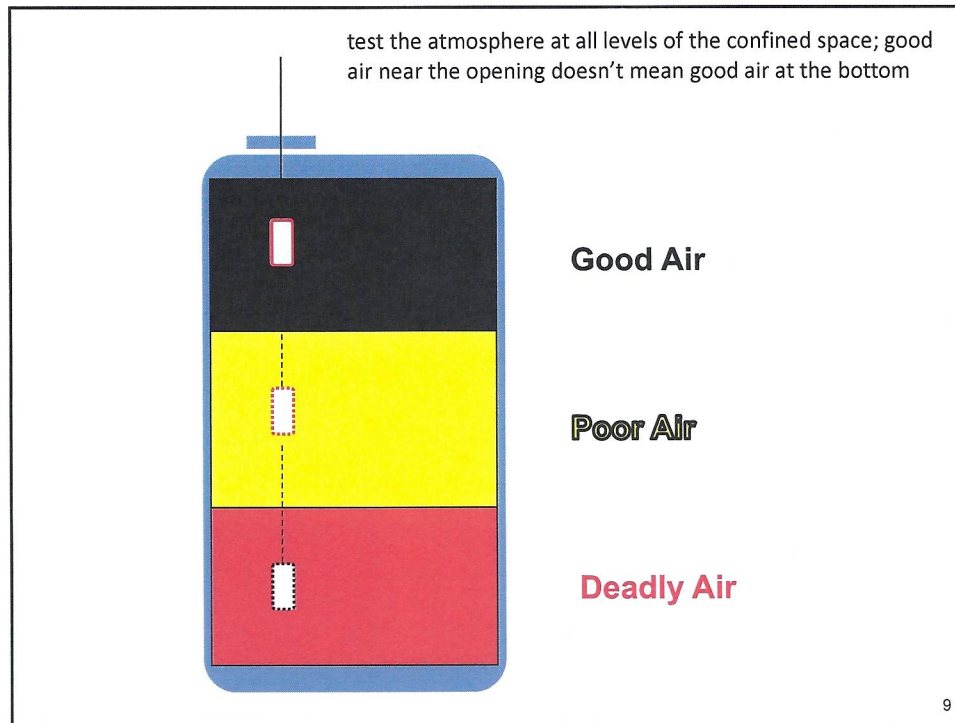
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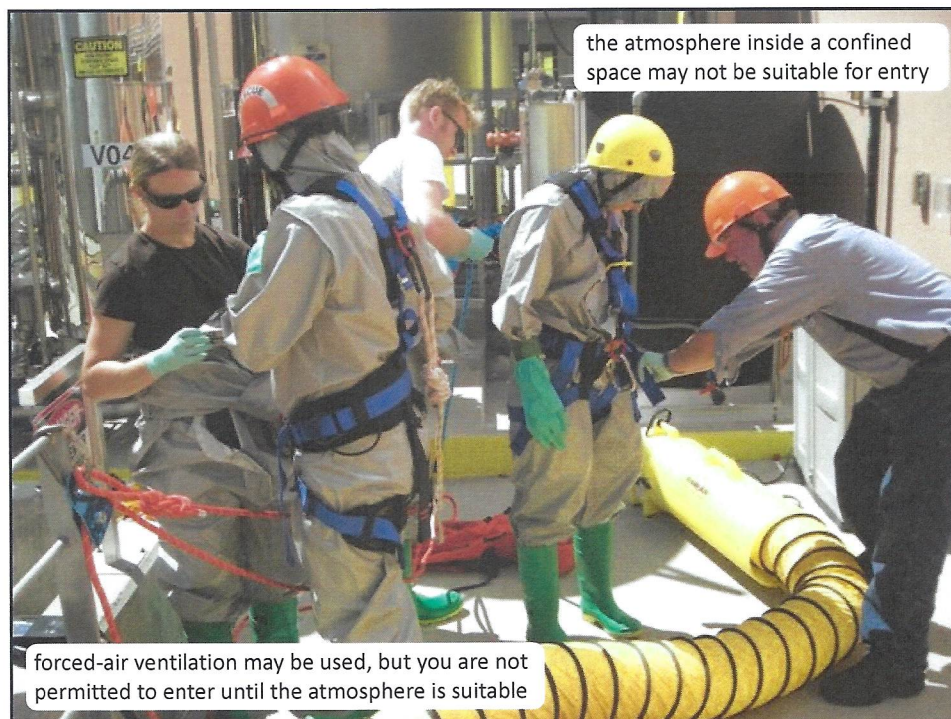
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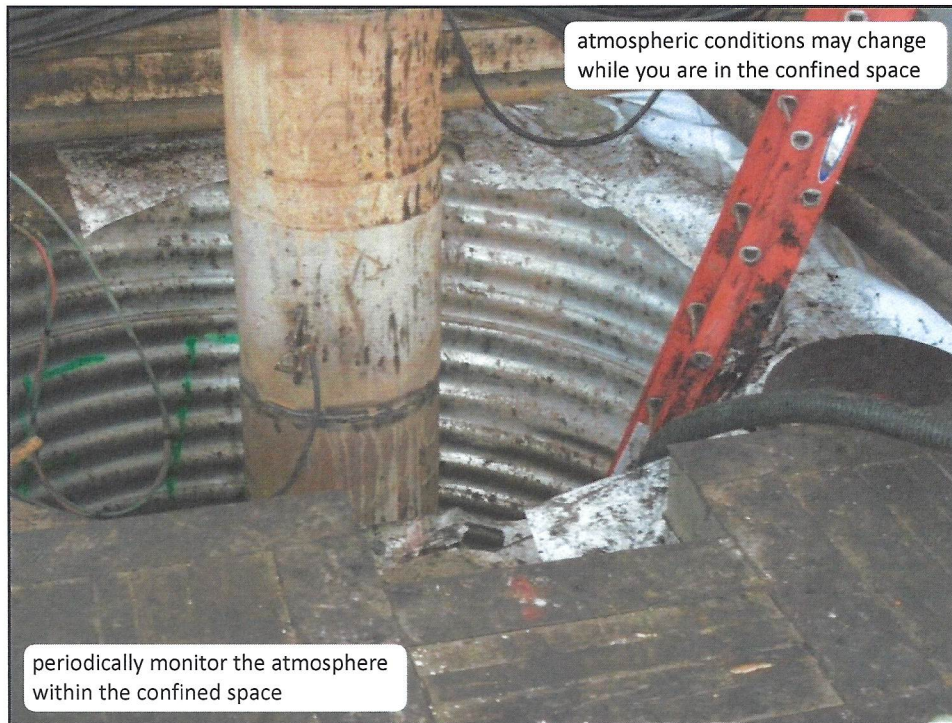


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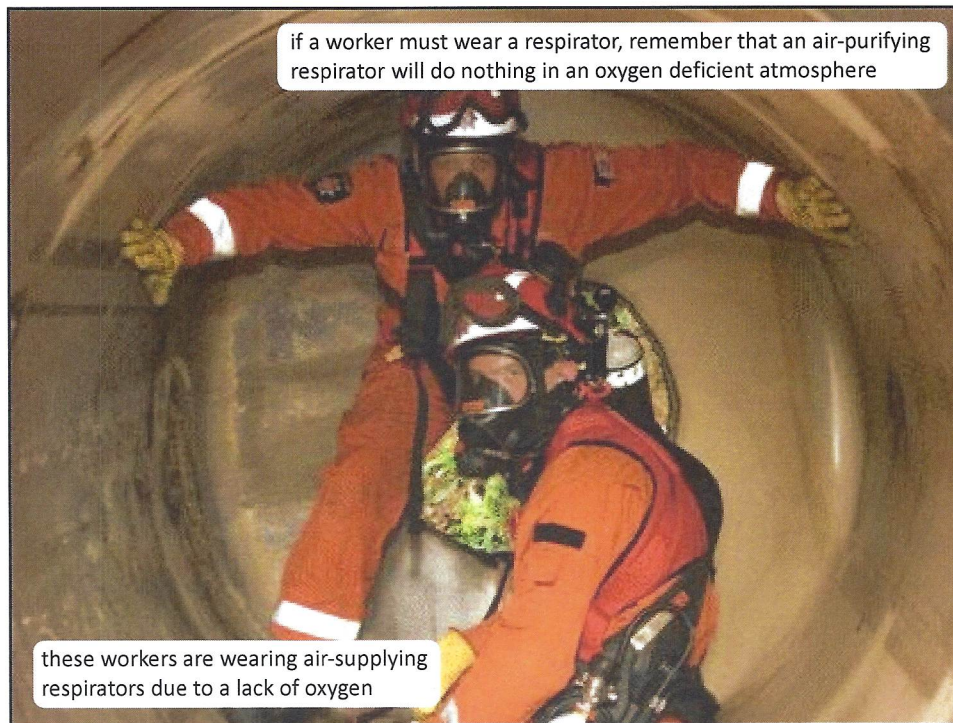
Get Out!

- If a hazardous atmosphere is detected while a worker is in the confined space
 - all activities should stop
 - the worker(s) should exit immediately
 - the hazard should be evaluated
 - protective measures should be taken

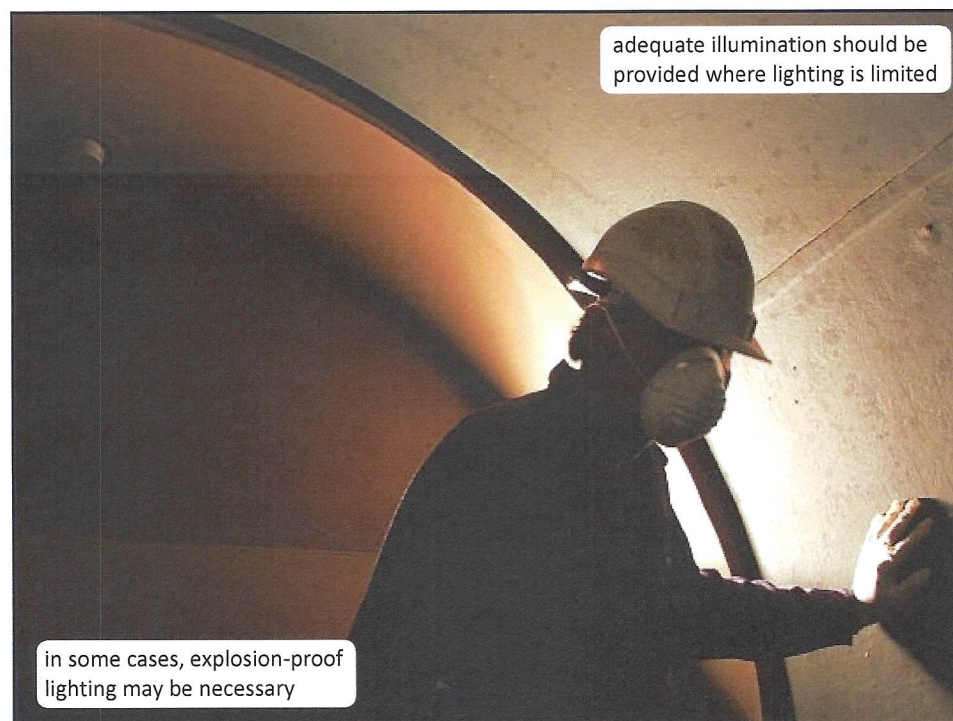


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Duties of Attendants

- Knows the hazards
- Maintains an accurate count of entrants
- Remains outside the permit space until relieved by another attendant
- Maintains regular communication with entrants
- Monitors conditions inside and outside of the permit space

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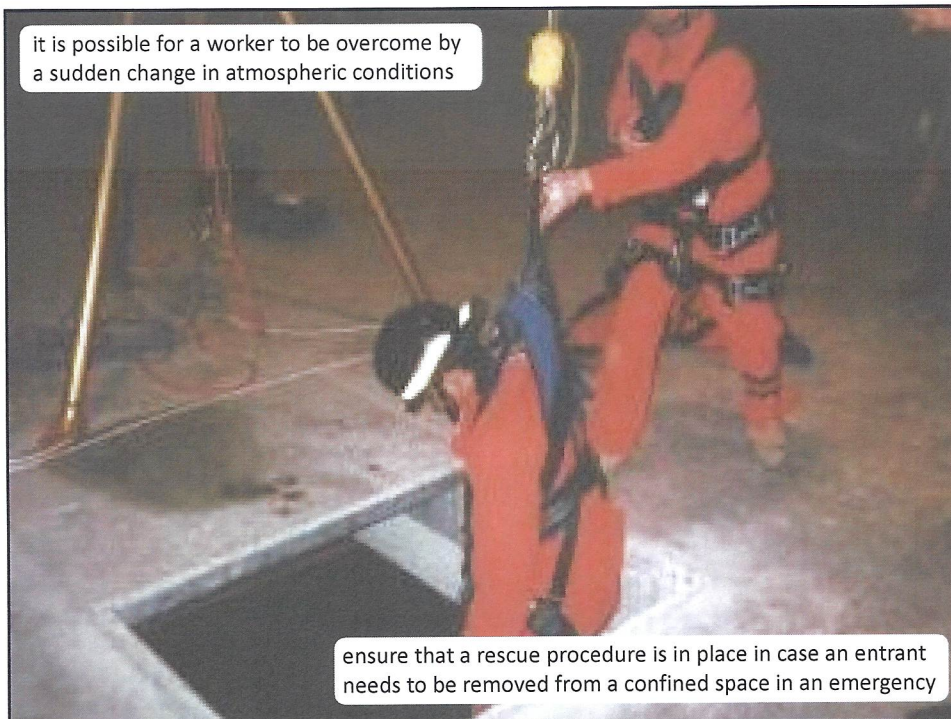
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Duties of Attendants

- Summon rescue services when needed
- Ensures unauthorized personnel do not enter permit space or affect operations
- Performs non-entry rescues
- Performs no other duties that might interfere with primary duty to monitor and protect the entrant(s)

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Additional Concerns

- Noise
 - amplified due to acoustics of the space
 - damages hearing and affects communication
- Slippery or wet surfaces
 - increased risk of falls and electrical shock
- Personal protective equipment
 - more common ppe such as hard hat, hard-toed boots, safety glasses, face shield, gloves, and overalls must be worn when needed
- Hot work



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Applicable Standards

- 1910.146 Permit-Required Confined Spaces

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Your Employer Is Responsible For

- Providing atmospheric testing equipment
- If necessary, providing ventilation equipment and/or respiratory protection
- Providing and training on confined space permits and the written program
- Developing and training on emergency action and rescue plans

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You Are Responsible For

- Testing the atmosphere prior to entry
- Periodically monitoring the atmosphere for possible changes
- Following permit procedures
- Ensuring that there is at least one authorized attendant present at all times

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Case Study

An employee climbed inside a tank to unclog a line but did not test the tank's atmosphere. The tool he was using produced a spark that ignited the atmosphere.



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Always Remember

- Test the atmosphere prior to entry and periodically
- Never enter a confined space if the atmospheric conditions are not suitable
- Ensure an attendant is outside the confined space at all times
- Follow your company's confined space permit

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Memory Check

1. What is the correct order of atmospheric testing?
 - a. flammables, toxics, oxygen, other
 - b. toxics, oxygen, flammables, other
 - c. oxygen, toxics, flammables, other
 - d. oxygen, flammables, toxics, other

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Memory Check

2. A space that meets the definition of a confined space and contains other recognized serious safety and health hazards is what?
- a. a confined space
 - b. a permit-required confined space
 - c. a non-permit-required confined space
 - d. not a confined space

