Confined Space Field Training

Definition of a Confined Space

A confined space is an area or place that is **large enough for you to enter and work, has a limited means of entry and exit**, and **is not designed for continuous occupancy**. For a location to be considered a confined space it must have all three of the conditions mentioned above. If it only has one or two then it is not a confined space. An example would be a manhole, box culvert, or storm pipe. All of these can be large enough for you to get inside and work, they definitely have a limited means of entry/exit, and you know it is not designed for continuous occupancy.

Two Types of Confined Spaces

In construction we find two types of confined spaces. The type of confined space depends on if it contains a hazard that can hurt or kill you.

First, we have a N**on-Permit required** confined space. This is a space or location that has all three of the definitions, its large enough to enter and work, it has a limited means of entry, and it is not designed for continuous occupancy. What it does not have is a hazard inside. Nothing inside the space can harm you. An example could be a concrete box culvert that you are forming on the inside.

Second, we have a **Permit Required** confined space. This is a space or location that has all three of the definitions, it is large enough to enter and work, it has a limited means of entry, and it is not designed for continuous occupancy. What it does have is a hazard or potential hazard that can hurt or kill you. During the permit stage you will need to either get rid of the hazard, ensure the hazard is secured so it can not hurt you, or in some way make the area safe. In some cases, the area may have a potential for a hazardous gas and special PPE is required. An example could be a sanitary manhole (potential deadly gas), a silo that has an auger inside (it would need to be locked out) or an area where you are welding or painting that could require breathing devices. Keep in mind that heat stress is a potential hazard.

NOTE: We have adopted a policy that our employees will not work in Permit Required Confined Spaces. When we encounter such areas, a sub-contractor properly trained, equipped, and experienced will be used for the work.

Anytime you encounter an area that you believe could be a confined space, bring it to your supervisors' attention. A **Competent Person** must make the decision on what type of space you have (permit or non-permit) and what protections will be required to enter the space.

OSHA REQUIRES us to evaluate every jobsite to identify confined spaces. A company competent person (the supervisor) must evaluate the jobsite and determine if any spaces meet the definition of a confined space, then do what ever tests are necessary to identify any potential Permit Required Confined Spaces. If a Permit Required Confined Space is noted, you must notify the safety department, OSHA has numerous requirements that must be followed, including but not limited to, formal training, signage, and formal notification of employees and sub-contractors.

OSHA REQUIRES us to continuously monitor any confined space for oxygen, combustible gasses/vapors, toxic gases/vapors, and other atmospheric hazards. We are required to use a direct read instrument with alarm. Testing must be done in a specific order, oxygen content, flammable gases/vapors, and for potential toxic air contaminants.

NOTE: OSHA does not consider an excavation to be a confined space (by definition). We are required by OSHA to follow the excavation regulations for those.

Our typical potential for confined spaces are storm sewer systems, box culverts and storm manholes. Keep in mind these typical areas can become deadly traps if caution is not used. A non-permit confined space can become hazardous and require a permit in some cases.

1. What if you are working in a storm sewer and it starts to rain? Could it become dangerous? Sure, it could, it could suddenly fill with water and in many cases that could happen quickly. Now you have a Permit Required confined space.

2. Rotten vegetation can create deadly gasses that can displace oxygen or become explosive. You could have a low oxygen content or a concentration of methane gas. Now you have a Permit Required confined space.

3. It is not unusual in this area to find where storm drains have been flooded by sewage from sanitary sewers. This situation can cause deadly gasses. Deadly gasses now make this sewer or manhole a Permit Required confined space. Some of these gasses are also explosive.

4. You could be installing a storm sewer near an old service station and find that the tanks have leached gasoline into the soil. Having this potential explosion exposure or fire exposure could cause a simple storm sewer installation to become a Permit Required space. It is so important to test the atmosphere in every situation.

Atmospheric Testing

We are required to test for Oxygen first. Oxygen must show on our testing devices between 19.5% and 23.5%. You can have a lack of oxygen, but you can also have too much oxygen in the air. Both conditions are very dangerous.

If you have below 19.5% oxygen you run a risk of your workers passing out or becoming asphyxiated from lack of oxygen.

If you have above 23.5% oxygen you run a risk of having an oxygen enriched condition where the atmosphere becomes explosive. If you have a spark or flame in an oxygen enriched atmosphere you could cause a flash fire or explosion.

IDLH = Immediately Dangerous to Life and Health

OSHA uses IDLH to indicate a hazard. If a space has an IDLH then it should be a Permit Required Space. This can be just about anything that can cause harm to you in the confined space. Atmospheric conditions, electrical lines (potential shock), mechanical equipment that can not be locked out, fumes from paint or chemicals, or even snakes or dangerous animals. If something can do harm to you in that space it is going to make it a Permit Required Space.

Possible Reclassification from Permit Required to Non-Permit confined space.

If the space has a physical hazard and that hazard can be eliminated or isolated so that it no longer presents a hazard, the space may be reclassified as a non-permit space and no further permits are required. The space would be continually monitored just as a typical non-permit required space, but you could eliminate the permits and notifications needed.

Extensive training is required before anyone can do any work related to a Permit Required confined space.

An employer must train authorized entrants, attendants, entry supervisors, and other employees with duties under the standard such as persons who does atmospheric testing. All trained worker's name, trainers' signature, and the dates trained must be maintained.

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