



Preventing Would-Be Rescuer Tragedies

According to the Canadian Centre for Occupational Health and Safety, an estimated 60% of confined space entry fatalities have been among the would-be rescuers. A would-be rescuer is a person who is trying to help someone who has become unresponsive in a confined space. We sat down with gas detection training specialist Mike Platek to understand atmospheric hazards in confined spaces and how to prepare for potentially dangerous entries or rescues.

1. Can you describe an example of a would-be rescuer scenario?

Two workers prepare to enter a confined space. They open the manhole, set up barricades to prevent accidental entry, and gather the necessary tools to perform the assigned tasks of the entry. The first employee enters the space. While descending the ladder, he is overcome with a lack of oxygen due to an unknown gas leak. His partner outside of the space hears his gasp for air and sees him fall off the ladder. In a panic, he calls to a passer-by to call 911 for the fire department. He then descends the ladder himself to rescue his friend. Unfortunately, he too is overcome with the lack of oxygen and falls to the bottom of the manhole. The fire department arrives, sees the two men at the bottom of the ladder, and attempt to rescue them. They too become victims of the same oxygen deficiencies. These tragic deaths could have been prevented had the workers checked the atmosphere before entry.

2. What are some reasons why a confined space would have hazardous atmospheric conditions?

There are both natural and man-made causes of hazardous atmospheric conditions in confined spaces. For example, rotting vegetation and the decomposition of organic materials will give off toxic and flammable gases. Not only are these gases dangerous, but in larger concentrations, they can

displace oxygen. When confined spaces are designed to store chemicals or are part of a working chemical process, the remaining material after the confined spaces are emptied will pose atmospheric hazards.

3. What's the best way to check for gases before entering a confined space?

Current laws require confined spaces to be free of all hazardous conditions before someone enters. This includes toxic and flammable gases and requires the oxygen to be at a safe volume. There are multiple methods to adhere to when evaluating confined space environments. Ambient air must be evaluated prior to entering the space (pre-entry checks), during entry (continuous), and when an entrant exits the confined space and re-enters. Gases stratify based on their weight, and depending on the gas compound, there can be a stratification effect of gases sinking or rising in a confined space. Workers should use a gas detector with a pump to evaluate the quality of the air in the space, so the entrant can understand the atmospheric conditions before entering.

When using an instrument with a pump, the user must wait for the gas to reach the sensor to have an accurate reading. Sample time will vary per instrument and accessories being used, so proper training on the equipment is essential to gathering correct atmospheric gas readings.

4. If you check the atmosphere before entering the space, why do you need a gas monitor during the entry?

The condition of the confined space atmosphere can change due to the activities performed during the entry. Welding is a perfect example. Depending on the type of welding being performed, hazardous gases can emit from the arc or oxygen-depleting gases can collect inside the space. During conventional stick welding, carbon monoxide and nitrogen dioxide gases are released. When conducting metal inert gas (MIG) welding, carbon dioxide and argon are typically used. Both gases are heavier than air and will force the oxygen out of the space.

5. What are some of the common mistakes you see people make when performing a confined space entry?

I can sum it up in one word, complacency. Too many times I have heard, "I've been doing this for twenty years and nothing has happened." Well, it only takes that one time. In a previous question, you asked about would-be rescuers. The story I told was true, and the men who entered that space had performed that same job at that same location for years. And that one time, it ended in tragedy.

6. How can training help you better prepare for confined space safety?

Training workers on confined space entry will open their eyes to the dangers of confined spaces and explain how incidents can occur. Educating them on how different gases act, where they come from, and how they affect the body is critical to safe operations in a space. Workers also need to be comfortable using the equipment that is made to save their lives. Conducting hands-on training with gas detectors will greatly increase workers' skills in operation and application. Through training, workers will understand that using gas detectors is not difficult. Demonstrating how the instruments react to changing atmospheric conditions will help them become more comfortable with the gas detectors, which will ultimately keep them safe.

7. What if a company is on a tight budget? What are some alternative training resources?

Life-saving training is worth the investment, but if you are truly limited by budget, there are helpful resources available. Online classes usually cost less than live training, and in some cases may be free of charge. Online training is also less of a time commitment than face-to-face training. It may only be a few hours long versus traveling for a multi-day class. Online training is a great option for those who are already familiar with the course content and just need a refresher or recertification. Some people also prefer online training because they can take the course in a quiet place without the distractions encountered in a classroom. Like a face-to-face course, online courses can be customized to focus on the areas that an organization needs the most help with. Online training classes also have flexible scheduling and are ideal for companies that have sites across multiple regions.

In an online gas detection course, a live instructor delivers the course material and uses a camera to show attendees what he is doing with the gas detectors. The camera allows the instructor to show attendees how to properly calibrate, operate, or repair an instrument in real-time. Instructors can also introduce software to the students and walk them through how to use it within their organizations. Although online courses are not as interactive as in person, they do offer the option to submit questions and feedback through the dialogue box. Attendees who have a computer or phone with an internet connection can participate from home or work and still receive a certificate of completion for passing the class exam.

Another beneficial option that many companies offer is online video training. Online videos are available for viewing 24 hours a day, seven days a week, and are broken up into short clips no more than two minutes long. If a worker is trying to find a specific topic, it is easy to locate it without having to watch a long training video or participate in a one- or two-day class. Although pre-recorded videos don't offer the same interaction that face-to-face or live online courses do, they give students the flexibility to watch whenever and as often as needed. For companies that have small training budgets, taking advantage of online video training is a great way to supplement worker education.

8. How can wireless gas detection technology improve safety in confined space entries?

The question many confined space entrants have asked is, "How do I know the attendant knows I'm OK?" With new, wireless

gas detectors, the attendant will know immediately if an entrant is exposed to a hazardous atmospheric condition. In addition to gas alarms, the instruments now have man-down and panic alerts that are transmitted to other instruments in a wireless network. So not only does the attendant get notified, but fellow workers in your area can respond and render aid if it's safe and necessary.

9. If you had to give one piece of training guidance to someone working with gas detectors in confined spaces for the first time, what would it be?

Wear your gas detector! There are gases you cannot see or smell, and they can kill you. Carbon monoxide is odorless and colorless and is known as the silent killer. In its natural form, methane is also odorless and colorless, and a concentration between 5-15% by volume will explode if an ignition source is present. As a First Responder and Hazmat Technician, I will not approach a hazardous area without my gas detector. ■

Mike Platek serves as Senior Gas Detection Specialist at Industrial Scientific Corporation. He started with Industrial Scientific in 1985 and has worked in many departments including engineering, sales, and training. As a Training Specialist, he hosts Gas Detection Made Easy classes both in-house and regionally throughout North America, as well as at customer locations.

Mike is also certified nationally for Firefighter I, and in the State of Pennsylvania, as an EMT. He holds certification in Hazardous Materials and Confined Space Supervision and participates in classes for training and safety. He is a volunteer firefighter and serves on his county's hazardous materials team.

https://www.ccohs.ca/oshanswers/hsprograms/confinedspace_intro.html

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