

# What Can Go Wrong in Confined Space Rescues?

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*Part two of a two part series*  
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Recently, we have all seen the media attention on some of the confined space rescues that have gone wrong. From May 2010 to September 2010 there were three high profile confined space rescues that resulted in three workers perishing, six injured rescuers and one fatality of a rescuer. So what went so horribly wrong that in these three incidents so many lives were disrupted?

Bad atmospheric conditions appear to be the culprit in each of these cases. The unfortunate part is that these incidents could have possibly been prevented. Had the atmosphere been monitored in these three cases alone, maybe we could have prevented the six injuries and one fatality. A person in need of help while in a tank, vessel, pit, manhole or other confined space is in a confined space rescue situation. Confined space awareness training and rescue training is a must for all responding rescuers. The game has changed from what it was 50 years ago. Our hearts cannot dictate our actions without clearly thinking through the situation and doing a simple risk benefit analysis. We must not tolerate the mentality of “risking a life to save a body.” This may sound cruel but at this point we are not even sure if we have a rescue or a recovery. Think before you react and solve the problem.

A rescue is defined as “to free from confinement, danger or evil.” OSHA expects that a rescue should be typically conducted within four to six minutes by most interpretations. For fire and rescue services, it is nearly impossible to receive an emergency call, respond, size up the scene, setup equipment and conduct an effective rescue within four to six minutes. Therefore, employers who rely on the fire department as their confined space rescue team may be in violation. OSHA mandates in the 1910.146 standard for confined space rescue that the rescuers must be evaluated and meet certain criteria to even be qualified as the rescue team. If those criteria cannot be met the employer would be forced to provide a site rescue team or bring the responding team into compliance. As a fire officer, I can count on one hand the number of times an employer has contacted us to determine our rescue abilities at their confined space work area. Yet, the fire and rescue team will still respond and attempt a rescue, risking their lives because that is what is expected. Where did we go wrong? A lack of training! We need to revise the fire service training to include awareness training on many different topics just like this one.

A simple four gas air monitor can identify what we cannot see, possible hazardous atmospheres. Workers are required to monitor the atmosphere prior to entry and so should the rescue team. There

is no nice green cloud floating around inside the space that says “Hey, look at me! I am toxic!” We cannot see, smell or taste most of the hazardous atmospheres that we work in so the only way to identify a possible hazard is to monitor the air quality. This must be performed PRIOR to the entry either by workers or rescuers. The atmospheric conditions can change instantly and therefore what might have been safe five minutes ago may now cost you your life. Monitoring initially will tell you what the current conditions are in the space. Monitoring continuously will tell you any changes that may occur while you are conducting the rescue. Continuous air monitoring is critical to identify the problem before it becomes a danger to you, which in turn allows you to exit the space quickly and safely. All too often though we monitor the space initially then put the monitor away thinking that everything is good. Remember, how quickly the atmosphere inside a confined space can change? INSTANTLY! These simple procedures should apply to workers in the space or a rescue team needing to do entry.

After the atmosphere inside the space is tested we need to ensure that it stays in a safe range. We can control this most of the time by the use of a blower. Blowers can be electric or gas with the better of the two being electric. If you do use a gas blower consider a Carbon Monoxide (CO) monitor at the air intake to ensure that no Carbon Monoxide is being pulled into your fresh air supply. Your goal here is to provide as much fresh, non-contaminated air as possible into the confined space and hopefully turning the atmosphere inside the space over at least one time. So with a blower providing fresh air and continuous air monitoring we should have better control of the atmospheric hazards of the confined space. While all this is taking place your team should be getting their gear out and ready, setting up the equipment, preparing the rescuer, preparing for medical, controlling other possible hazards, securing the area and maintaining control of the situation. It is crucial with timing to multi task the atmospheric monitoring along with the other setup duties to expedite a rescue.

Controlling the atmosphere is the most important part of all confined space entry work. This is the main hazard that kills most workers and rescuers. This is also the most difficult to identify and the most widely forgotten due to the lack of being able to see the danger. You are called to a rescue of a worker in a tank and upon arrival you find a mid 30's male lying face down in an empty and by observation, hazard free environment. What you don't see is the atmospheric hazard and soon find out the tank is oxygen deficient. Are you the next victim? Workers and rescuers, employers and owners, entrants and attendants all must aggressively manage and control the atmospheric hazards of a confined space. Your life depends on it, your rescuers life depends on it, and your family depends on it!

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