

When Does a Confined Space Rescue Start?

COMMUNICATION TO THE RESCUE

by Terry Ibbetson March 31, 1999

Any safety regulation that comes with a built-in plan for executing a rescue from the environment being regulated, speaks volumes about the dangers of working in that environment!

Regulations for Confined Space entry fall into this category and you only have to look at the statistics to understand why. In normal work places, for every 1400 accidents reported, one results in a death or serious injury. In confined spaces, it is one in ten! Also, for every person dying in a confined space, almost two people die trying to execute a rescue. Many of these are professional rescuers.

In 1993 the USA became the first country to enforce dedicated Confined Space Regulations on a national scale. Since then many countries have followed suit including Canada, Australia, New Zealand and Great Britain with other European Countries following soon. In a very short time frame, safety of workers in confined spaces has become a global issue, even though it has been a problem for generations.

The regulations were introduced to improve statistics by mandating that companies not only recognize, but inventory and label all confined spaces within their operations. They also mandate that workers understand the hazards of working in confined spaces, are properly trained and equipped to handle them and have access to a fully trained and fully equipped Rescue Team in the event of a problem.

The checks and balances needed to make this work in the millions of confined space entries done each year, became part of a Confined Space Entry Permit. This document records every aspect of every entry and has to be completed each time someone enters a confined workspace, or as it is named in some countries, a "Permit Required Confined Space".

As you can imagine, the Permit is a very important working document which, if used correctly, guarantees safe entry for workers and the best possible chance of their being rescued in the event of a problem. The Permit is used as a record that lockout and tag procedures have been followed and safe levels of oxygen and explosive gasses are present prior to worker entry. Among other essential items, the permit also records the name of the Rescue Team who will respond if a problem occurs, along with how to contact them. The Rescue Team must have been informed of the entry in advance and agree to be listed on the Permit.

Unfortunately, like all important documents, the permit becomes more important after a problem occurs, as evidence that prescribed procedures were followed prior to the problem occurring. According to current statistics, confined space workers are more likely to die in the event of an accident than in any other job, and could very well take one or two fellow employees with them. For this reason, understanding how a confined space rescue can be prepared for in advance, should be very important to all companies responsible for these activities which are essential for them to remain in business. Liability is also a situation companies should try to avoid, especially when it involves the death of an employee which could have been avoided.

The introduction of enforceable confined space regulations in the USA, created two separate entities. The first is the worker Entrant Team and the second, the Rescue Team. Each has a different reason for entering a space and each has a different set of priorities. Under regulation, both rely on each other for their very existence, however, if the safety of Entrants is to be guaranteed both should understand and anticipate each other's needs.

The responsibility for understanding leans more towards the people who will summon the Rescue Team. Unfortunately, few Entrant Teams fully understand the mechanics of a confined space rescue. Many do not realize that with better preparation they could significantly reduce the time taken to rescue a fellow worker in the event of a problem.

Bear in mind that Rescue Teams spend their lives finding ways to safely reduce rescue times, giving accident victims a better chance of survival. They choose their equipment carefully and train with it as a Team, so that when the time comes to execute a real rescue, the time taken is the least possible they can do. Any thing that can be done by a victim's fellow Team members to shorten rescue time must therefore be considered an essential act.

We must not forget that a confined space rescue starts with the discovery that an Entrant is in trouble and ends when an Entrant is safely out of a space and in the care of medical personnel. If the concern is truly for a safe rescue of an Entrant, then the total time involved should be looked at as a single entity to

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a safe and efficient rescue. The faster that contact can be made with the victim, the sooner the rescue will start. If the problem site was utilising continuous voice communication equipment for their entry then, with communication already established, the Rescue Team can make Initial Patient Contact immediately on arrival, reducing the overall assessment time significantly.

It is also important to consider the positive effect on both victim and Safety Attendant of having voice contact during the wait period.

5. Preparation Time: Starts when the assessment is complete. The length of this time block, which includes monitoring the space, rope rigging, donning the harness's and breathing equipment etc., is controlled by the experience and training of the Rescue

6. Rescue Time: This is the actual time taken for the rescue and commences when the first rescuer enters the confined space. This is a critical time for both victim and rescuers, and must be used safely and efficiently. Rescue Teams are constantly looking for ways to reduce Rescue Time without detracting from the safety of any Team member, while increasing their overall efficiency.

The type of equipment used by the Team, their rescue technique and previous training all have a direct bearing on the amount of time taken for the rescue. This includes the time taken to reach the victim, to address immediate medical needs, prepare the victim for removal, move the victim to the entrance of the space and finally to remove the victim from the space. Essential life protection equipment used includes breathing apparatus, gas monitors, lifting and fall protection devices and communication equipment all designed to safeguard Team members and allow them to execute safe, efficient rescues.

Based on knowing the elements of a confined space rescue, we can determine that by using communication equipment for all entries, in the event of a problem the React Time will be eliminated and when the Rescue Team arrives, the Assessment Time will be drastically reduced or eliminated. Also having the safety Attendant in continuous contact, the victim may be more relaxed and less stressed when the Rescue Team arrives.

Apart from saving time during a rescue situation, having good communication during any confined space entry has a calming effect on Entrants and could prevent problems from occurring. Many other benefits can be derived from having communication for entry, however, it must be the right kind of equipment for this unique work environment.

Confined spaces are very different from any other work area and must be treated accordingly. The two methods of electronic voice communication most considered are wireless, using two-way radios and hard line, using a cable connected intercom system.

Radio equipment is extremely effective when used by Safety Attendants outside spaces to maintain contact with their base or, to call for a Rescue Team if needed. Portable Radios operate most efficiently when the transmitter and receiver are on the same plane, without obstruction. Radio signals do not penetrate metal or concrete with re-bar, which describes a majority of confined space environments. Radio communication in spaces is therefore subject to dead spots or reduced signal strength resulting in messages that are garbled or not received.

The best overall choice for reliable communication in confined spaces is a hard line intercom system. A full duplex intercom system allows hands-free, private communication between Safety Attendants and their Entrants for 100% of the time and provides the continuous human contact that is desired by most Entrants during entry.

The benefits of having good communication with this type of system, however, must be weighed against the presence of a cable. When using supplied air-breathing apparatus, the cable can be attached to the air-line, creating a single umbilical, which can be easily managed. In most cases, proper training with the equipment significantly reduces this as a problem.

No matter which equipment is selected, care must be taken to ensure its survival in this harsh environment. As with all electronic equipment, it must be electrically shielded. It must also be extremely rugged, resistant to chemicals and be environmentally sealed. Most importantly, as a majority of confined spaces are classified as being explosive, the equipment must not be the cause of an explosion, must be

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eliminated. Equipment should therefore carry Intrinsically Safe Approval from an accredited agency (CSA), for the explosive substances it may be exposed to during entry.

The value of having the right tool for the job is a principle we are all familiar with. While life saving equipment is essential for confined space entry, it is abundantly clear that voice communication helps them use it safely. Communication also provides peace of mind to anyone entering a confined space. In this environment, the right communication equipment is a tool for the worker that provides continuous, hands free voice contact with outside Attendants and bridges the dark gap between a problem occurring and the arrival of a rescuer.

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