



Out-Sourcing Confined Space Rescue Services

Every safety manager knows workplace safety is not something that happens by chance - it's a serious commitment. This whitepaper outlines the criteria necessary for selecting a confined space rescue service and the insurance requirements. It also contains a confined space rescue permit plan template.

WHITE PAPER



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ISSUE:

Mitigating risk while performing work in confined spaces.

APPLICABLE TO:

Food, beverage and specialty process facilities.

Mitigating the very dangerous and inherent risks of working in confined spaces is a concern for many companies. When I was the safety director for a mechanical process design-build contractor whose employees routinely entered and worked in confined spaces, I knew it was imperative our personnel be thoroughly trained in confined space rescue. I set out to find the best training available and I decided to participate in the training myself. The training I selected was 5% regulations, and 95% hands-on entry and rescue training. We learned how to use special rescue equipment, tie knots, set up and use anchoring techniques, lifting systems, atmospheric testing and much more.

At the end of the training I knew three things; 1) all our employees required to work in confined spaces needed this training; 2) we were not equipped or trained well enough to provide our own rescue services; and 3) it is cost prohibitive to train, certify and maintain the equipment necessary to provide in-house rescue services. In fact, it was clear that performing an actual rescue must be done by certified professionals for whom rescuing people is their primary business.

My insights were further confirmed when I read Rethinking Using 9-1-1 As Your Confined Space Rescue Plan, written by fire fighters Adam O'Connor and Jeff Tomb (published by EHS Today in February 2013). The article made three key points which have stuck with me over the years.

First it states that "for every victim who dies in a confined space, three would-be rescuers die trying to save that victim." It quotes a safety director of a large international design-build contractor who said, "If a contractor or facility is using ""Call 911"" as their rescue plan, they are planning for a body recovery." Further it states that if a person were to be electrocuted (or their heart stop for another reason) rescuers have only about four minutes to extract the victim and begin CPR, as it takes only four minutes until their brain begins to suffer.

“for every victim who dies in a confined space, three would-be rescuers die trying to save that victim.”

**Adam O’Conner,
Firefighter**

Every safety manager knows workplace safety is not something that happens by chance - it's a commitment. No responsible company would ever place their employees in situations with unnecessary risks.

Moving forward I determined we would subcontract rescue services to reliable firms with exceptional credentials and track records. Below, I have outlined the criteria we use when selecting a confined space rescue service. I've also included a list of Employer Responsibilities and a list of items to include in a Confined Space Rescue Plan. I hope you find this information useful and feel free to share your comments on this important topic.

Criteria for Selecting a Confined Space Rescue Service

The Personnel

Experience is the most important differentiator in reducing the risk of human errors during critical tasks. The rescue personnel should have the required specialized training and actual experience performing confined space rescues. They should also be trained to function as a cohesive unit. When selecting a company to perform standby rescue services, it is important to ensure the rescue personnel:

- Have actual experience in performing confined space rescues as a unit (not just practice sessions)
- Are fit tested to ensure they can perform the rescue in a timely manner
- Have undergone random drug testing and background checks
- Are certified in CPR and basic first aid
- Are knowledgeable and trained in using specialized rescue equipment

You may also require specialty personnel who:

- Are trained in hazardous materials
- Are certified in Fire I & II
- Are certified in emergency medical training (EMT)

Insurance

In addition to your own Worker's Comp and liability insurance, it is imperative that the rescue service you hire carries their own Worker's Comp and liability insurance. The service provider should provide a certificate of insurance naming you, the facility owner, and the general contractor, if applicable, as additional insureds.

Employer Responsibilities

OSHA clearly outlines the employer's responsibilities in the OSHA Permit Required Confined Spaces regulations #1910.146 Appendix F. (I highly recommend reading this document to learn the detailed requirements.) [Link to OSHA Regulations](#)

Basic requirements when evaluating a rescue service:

- Can they respond in a timely manner *considering the hazards identified?*
- Are they capable of reaching the victim(s) in a timely manner *considering the hazards identified?*
- Are they proficient in using the rescue-related equipment *considering the hazards identified?*
- Are they equipped and proficient in performing the rescue services *considering the hazards identified?*
- Can they provide the necessary personal protective equipment (PPE) and have they provided proficiency training for the PPE?

Experience is the most important differentiator in reducing the risk of human errors during critical tasks.

- Have they provided their employees with specialized confined space rescue training?
- Have they provided training in basic first aid and CPR (with at least one member certified)?
- Have each of the rescue personnel practiced confined space rescue a *minimum of once every 12 months*?

The employer must facilitate the rescue services by:

- Thoroughly investigating, documenting and informing the rescuers of potential hazards in and around the confined space.
- Providing access to all permitted spaces for rescue planning and practice.

In addition to the regulation requirements, employers must:

- Recognize and clearly mark all confined spaces with warning signs.
- Take precautions to prevent unauthorized access to confined spaces.
- Identify physical and atmospheric hazards in and around confined spaces.
- Communicate and relay rescue related information with the company who is performing rescue services.
- Authorize and support the confined space rescue plan to be used.
- Train employees entering the confined space in rescue services even though they are not a member of the rescue team.

Confined Space Rescue Permit Plan Template

The following information should be addressed in your documented confined space rescue plan.

- **Job name**
- **Project number** (or Purchase Order number)
- **Name** of person who created the rescue plan.
- The name, address and phone number of the **company subcontracting (hiring) the rescue services**
- The name, address and phone number of the **company supplying the rescue services**

- **Description of work** to be performed and the purpose of entry
- **Date** the work will be performed
- The **starting time** and the **estimated duration** of the job
- **Date and time** the permit **expires** or is cancelled
- **The location**
The location of the job should include a physical address, a drawing indicating the exact location relative to landmarks or structures, cross streets and GPS coordinates (in remote locations).
- **Description of the space**
The description of the space should specify if the:
 - Internal configuration is open or obstructed
 - Entrance portal is elevated or non-elevated
 - Portal size is restricted or unrestricted
 - Portal access is horizontal or vertical, side, top or bottom
- **Description of the surrounding work area** (which may affect the rescue effort)
- **Diagram of space** (including direction of approach and staging areas)
- **Type of Rescue**
Indicate which of the following applies:
 - **Non-entry rescue** or **entry** procedures will be used
 - If **on-site rescue services will be used**, specify the onsite rescue personnel and their designations (roles)
- If additional **off-site entry rescue services** will be used, specify:
 - The name of the rescue service
 - The name of the contact person
 - The phone (and back up phone) for the rescue service
 - The name and phone of the person responsible for coordinating entry date and time.
 - The estimated time to arrive at the site

- **Method of Rescue**

- Vertical
- Horizontal
- Multi-level
- High Angle
- External
- Internal
- Congested

- **Methods of Communication**

Indicate which method(s) will be used by rescue personnel, entrants and other area personnel

- **Safety watch to rescue personnel** (phone, audible signal, radio channel to monitor)
- **Safety watch to entrants** (radio, audible signal, visual hand signal, rope signal)
- **Safety watch to area personnel outside confined space** (phone, audible signal, radio)
- **To the off-site rescue service** to verify they are able to perform rescue services at the agreed date and time.

- **Potential Hazard Identification**

List all hazards which may be present.

- Chemicals
 - Oils
 - Solvents
 - Corrosive
 - Caustic
- Atmospheric
 - Oxygen deficiency
 - Oxygen enrichment
 - Flammable gases or vapors
 - Toxic gases or vapors
 - Combustibles
 - Airborne combustible dust
 - Carbon monoxide
 - Hydrogen sulfide
 - Welding fumes
 - Oil mist
- Other Hazards
 - Mechanical
 - Electrical
 - Engulfment

- Pneumatic
- Entanglements
- Turns, twists, angles
- Tripping
- Falling
- Temperature
- Materials harmful to skin
- Outside Confined Space (Specify potential hazards which exist outside the confined space.)

- **Ventilation**

Specify the ventilation requirements.

- Is the job under gas purge or inert blanket, and if so, which type of gas?
- Is additional forced mechanical ventilation required?
- Specify ducting length required.
- Is self-contained breathing apparatus required?
- Does the air quality need to be monitored? (If so, your plan must include a method for documenting the air quality during the duration of the occupancy.)
- Is the confined space explosion proof?

- **Lighting**

Specify the lighting requirements.

- Is additional lighting required?
- Is the lighting battery powered, 50 volts or less, OR 120 v protected by GFCI?
- Is the lighting explosion proof?

- **Exit conditions**

Specify the conditions in which an entrant must immediately exit the confined space such as:

- Unexpected hazard
- Unsafe act
- Unexpected or prohibited condition detected
- Detected sign of over-exposure
- Alarm activated
- Order to evacuate

- **Emergency / Rescue Equipment Required**

The plan should detail which equipment is required and who will supply it. Here is a sample list.

- Retrieval system/hoist/winch
- Anchor overhead
- Anchor straps
- Shock absorbers/lanyards
- Pre-rigging
- Rigging plates
- Carabineers
- Pulleys
- Ascenders
- Ladder (type)
- Webbing
- Safety lines
- Lifter basket / stretcher
- Life line/lanyard
- Wrist / ankle harness
- Combination supplied air/escape respirator
- Air quality tester
- Multi-gas monitor
- Barricades
- Fire extinguisher
- First aid kit
- Eye wash station
- Compressor
- Air line
- Self-contained breathing apparatus
- Trauma kit
- AED (defibrillator)

- **Personal Protective Equipment (PPE) Required**

The plan should detail which PPEs are required and who will supply them. Here is a sample list.

- Gloves
- Chemical gloves
- Water-proof coveralls
- Harness
- Hard hat
- Face shield
- Safety boots
- Boot covers
- High visibility vests
- Goggles / safety glasses
- Ear protection
- Respirator cartridge/type

- **Tests and Test Results**

The following (when applicable) must be monitored prior/during/after entry. Documentation of the test results must be retained.

- Oxygen level
- Flammability
- H₂S (hydrogen sulfide)
- CO (carbon monoxide)

- **Designated Rescue Team**

List the following information for everyone participating in the rescue team.

- Name(s)
- Role(s) (designation)
- CPR, First Aid Certification dates

- **Additional Emergency Services**

List name, location and contact information for the following:

- Hospital
- Fire
- Ambulance
- Switching center / Control room (for work location)
- External Utilities (power, gas, water companies)
- On-site emergency contact with whom the Entry Supervisor must coordinate

- **Rescue Procedure review**

A meeting should be held with the supervisor, rescue team and entrants to review the procedures for the specific confined space.

- Name of personnel who participated in the emergency plan procedure review
- Date and time of the emergency procedure plan review

- **Practice Rescue**

When possible, a practice rescue should be performed to ensure there are no problems with the rescue plan.

- Name of personnel who participated in the practice rescue
- Date and time of the emergency procedure practice rescue

- **Requirements to be completed prior to entry**

The requirements may vary for each confined space, but a specific list should be created and documented in the rescue plan.

- o Rescue procedure review
- o Rescue practice session
- o Off-site back up personnel contacted and standby confirmed
- o Confined space entry permit completed and authorized
- o Lockout/Tagout/De-energize/Verify all line(s) disconnected/blinded capped
- o Purge/Flush/Vent
- o Secure area (post, flag, place barriers)
- o Safety personnel in position

- **Certifications**

The company performing the rescue services must certify in writing:

- o The confined space rescue plan has been completed and approved prior to commencing the work
- o That all personnel are certified to perform the required services
- o Rescuers are trained to follow the rescue procedures for the specific job
- o That all equipment supplied has been tested on a regular basis and in compliance with OSHA
- o They will perform an emergency plan/rescue procedure review with all affected personnel
- o They will verify the availability of off-site personnel (such as the fire department) prior to commencing work
- o They will verify there is no equipment or vehicles blocking the emergency access point prior to commencing work
- o All personnel are equipped and wearing the required equipment prior to commencing work
- o All prior-entry requirements have been met
- o All required monitoring will be thoroughly documented, and the test results provided to employer

Signatures

- o Person who prepared the rescue plan / Confined space entry permit
- o Entry Supervisor's name
- o Contracting and authorizing party (who subcontracted the rescue plan)

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ABOUT THE AUTHOR

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ABOUT BARNUM MECHANICAL INC.

Barnum Mechanical Inc. (BMI) is a forward-thinking design-build firm specializing in the food, beverage and specialty process industries. BMI is known for superior design, project management and installation services. BMI has operated throughout the United States since 1980.



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