**Confined Space Entry Procedure**

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**Purpose**

The confined space entry procedure ensures the safety of personnel working in hazardous environments. It establishes standardized processes, risk assessments, and compliance protocols to minimize risks associated with confined spaces.

Confined spaces are areas not designed for continuous occupancy and have limited entry or exit points. Examples include tanks, silos, storage bins, pits, pipelines, and tunnels. The inherent risks in these spaces, such as oxygen deficiency, toxic gases, and physical hazards, demand strict adherence to safety procedures.

**Steps Before Entering a Confined Space**

Before entering a confined space, ensure the following steps are strictly followed:

1. **Identify the Confined Space**:
   * Determine whether the area qualifies as a confined space based on limited access, restricted ventilation, and not being designed for continuous occupancy.
   * Examples include storage tanks, sewer lines, silos, and trenches.
2. **Conduct Risk Assessment**:
   * Evaluate potential hazards such as toxic gases, oxygen deficiency, flammable materials, or physical dangers like engulfment or entrapment.
   * Review historical data, process residues, and external environmental factors.
3. **Obtain Necessary Permits**:
   * Secure a valid confined space entry permit detailing the nature of the work, safety measures, roles, and emergency contacts.
   * The permit must be authorized by a responsible supervisor or safety officer.
4. **Atmospheric Testing**:
   * Conduct a thorough evaluation of the confined space atmosphere using a calibrated gas detector.
   * Ensure the following:
     + Oxygen levels are between 19.5% and 23.5%.
     + Flammable gases are below 10% of the Lower Explosive Limit (LEL).
     + Toxic gases (e.g., H2S or CO) are below permissible exposure limits.
5. **Ensure Proper Ventilation**:
   * Use mechanical or natural ventilation to eliminate hazardous atmospheres.
   * For areas with persistent gas hazards, consider continuous ventilation during the operation.
6. **Inspect Equipment**:
   * Verify that all Personal Protective Equipment (PPE) is in good condition and appropriate for the task.
   * Ensure the availability of harnesses, lifelines, gas detectors, and communication devices.
7. **Develop an Emergency Plan**:
   * Prepare a rescue strategy tailored to the confined space, detailing roles, equipment, and communication methods.
   * Assign a trained rescue team and ensure their availability on-site.
8. **Pre-Entry Briefing**:
   * Conduct a detailed toolbox talk to review hazards, roles, emergency procedures, and entry protocols with all team members.

**Entry Procedures**

**Entry Without Breathing Apparatus (BA):**

* Permitted only when atmospheric testing confirms safe oxygen levels (19.5% - 23.5%) and no toxic or flammable gases.
* Continuous gas monitoring must be conducted during the operation.

**Entry with Breathing Apparatus (BA):**

* Mandatory in oxygen-deficient atmospheres or when hazardous gases are detected.
* Ensure that personnel are trained in the proper use of air-supplied breathing equipment.
* Monitor atmospheric conditions continuously and adjust protocols as needed.

**Golden Rules**

1. **No Entry Without a Permit**:
   * Always secure a valid entry permit before entering any confined space.
2. **Continuous Atmospheric Monitoring**:
   * Regularly test oxygen levels, flammable gases, and toxic substances.
   * Use portable or fixed gas detectors for real-time monitoring.
3. **Never Work Alone**:
   * Always have an attendant stationed outside the confined space to monitor and assist if necessary.
4. **Use Proper PPE**:
   * Equip all personnel with the appropriate protective gear, such as helmets, gloves, respirators, harnesses, and safety boots.
5. **Rescue Preparedness**:
   * Ensure rescue equipment (e.g., lifelines, tripods, and winches) is readily available.
   * Assign and train a rescue team to handle emergencies effectively.

**Emergency Preparedness**

* **Rescue Plan**:
  + Document the location, entry points, communication methods, and personnel involved.
  + Include sketches or diagrams of the confined space layout.
* **Equipment**:
  + Provide and inspect necessary equipment, including:
    - Harnesses, lifelines, and winches.
    - Fire extinguishers and first aid kits.
    - Intrinsically safe lighting and communication devices.
* **Training**:
  + Conduct regular training for all personnel, including rescue teams, on confined space entry and emergency protocols.
  + Review and practice the rescue plan periodically.