

## **Confined Space Entry**

### **Program Policy**

No faculty, staff, or students of the University of Kansas - Lawrence Campus shall enter into any confined space or permit-required confined space without first having received the appropriate information and training as required by this program and ensuring that the safety requirements of this program have been implemented. This is necessary in order to protect the safety and health of University personnel and achieve the goals and requirements of the University's safety and Health Policy.

### **Definitions**

**Confined space** - A confined space is defined as an area which:

- has adequate size and configuration for employee entry;
- has limited means of access or egress; and
- is not designed for continuous employee occupancy. Confined spaces include but are not limited to manholes, boilers, pipelines, sewers, tunnels, silos and vats.

### **Permit-Required Confined Space (PRCS):**

A confined space with one or more of the following characteristics:

1. Contains or has a known potential to contain a hazardous atmosphere. Three of the most common atmospheric conditions that constitute hazards are oxygen deficiency, combustible gases and vapors, and toxic gases and vapors.
2. Contains a material with the potential for engulfment of an entrant.
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls, or a floor which slopes downward and tapers to a smaller cross-section.
4. Contains any other recognized serious safety or health hazard.

### **Authorized Entrance:**

Only employees who are trained as an entrant and have obtained a permit signed by the entry supervisor may enter a permit required confined space.

**Attendant:**

At least one individual is to be stationed outside the permit required confined space who monitors the authorized entrants inside the space for the duration of the entry operations.

**Entry Supervisor:**

The entry supervisor is the department head, foreman, or supervisor responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry, for overseeing entry, and for terminating entry.

**Identification of PRCS**

Each department or unit responsible for identifying all confined spaces and those suspected of being a PRCS that their personnel may possibly be required to enter. Departments may contact the KU-EHS Dept. to assist in the evaluation of those spaces.

**Warning Signs**

PRCSs must be posted with warning signs or some other appropriate identifier notifying employees of any hazards that are present, and that only authorized entrants may enter the PRCS.

**Evaluation of PRCS Conditions**

Each PRCS must be evaluated to identify hazards; determine the severity of the hazards; and establish control procedures and practices by which the space may be entered safely. The KU "Confined Space Entry Permit" form (available from the EHS Dept.) May be used to perform the appropriate hazard evaluation.

Before entry into a PRCS is authorized, the conditions within the space must be tested to determine if acceptable entry conditions exist. The space is to be monitored during the course of entry operations to determine if acceptable entry conditions are being maintained. When testing for atmospheric hazards first test for oxygen deficiency, then for combustible gases and vapors, and then for toxic gases and vapors.

## **Pre-entry And Entry Practices And Procedures**

Each department is to develop written entry procedures and practices necessary for safe confined space entry operations, to be included in their confined space safety plan. Practices and procedures to be addressed include:

- isolating (locking and tagging) the PRCS;
- ventilation of the PRCS;
- providing vehicle and pedestrian barriers to protect entrants from external hazards; and,
- verifying that conditions are acceptable for entry.

## **Locking And Tagging**

No work is to be performed within a confined space until appropriate locking, tagging and/or isolation is accomplished to prevent the inadvertent actuation of operations or process associated with the space which might expose employees to hazardous conditions.

## **Required Equipment**

The following equipment is to be provided and maintained for proper use:

testing and monitoring equipment  
ventilating equipment  
communications equipment  
personal protective equipment  
lighting equipment  
barriers and shields  
ladders  
rescue equipment  
other equipment necessary for safe entry

## **Permit System**

Before entering a PRCS an authorized employee must complete the KU "Confined Space Entry Permit" (available from the EHS Dept.) and send to the entry supervisor, for approval. The permit must include: identity of the space; purpose of entry; date and duration of entry; list of authorized entrants; eligible attendants and individuals to be in charge of entry; hazards of the PRCS; measures of isolation of the space; measures to control potential hazards; the acceptable entry conditions; testing and monitoring equipment and procedures; rescue services in the event of an emergency; rescue equipment to be provided on-site; if necessary, communication procedures between authorized entrants and attendants; and personal protective equipment. After the confined space entry has been concluded, a copy of the completed permit is to be sent to the EHS Dept. The original should be maintained by the entry supervisor for recordkeeping.

## **Rescue Team**

If an emergency arises that requires a rescue team, the KU Public Safety Dept. is to be contacted by calling 911. The rescue service is to be provided access to all PRCSs from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations. Non-entry retrieval methods are to be used unless the retrieval equipment would increase the overall risk of entry. Each authorized entrant is to use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level. For vertical type PRCSs more than 5 feet deep, a mechanical device for retrieval is to be available.

## **Training**

Employees who are assigned duties that may require entry into PRCS must receive training on confined space entry procedures, the permit system, and hazard recognition and control procedures. Authorized entrants, attendants, and supervisors in charge of entry are to receive training in their respective confined space duties and responsibilities. Training is to be provided before employees are first assigned duties pertaining to PRCSs and whenever there is a change in assigned duties in PRCS operations. Contact KU-EHS Dept. to arrange for appropriate training.

## **Departmental Confined Space Safety Plan**

Each department, shop, or work unit is to complete a Confined Space Safety Plan that provides the following:

- identify confined spaces and permit required confined spaces;
- describe procedures and practices necessary for safe permit space entry;
- identify equipment that will be needed;
- designate of persons who are authorized as entrants, attendants, or supervisors;
- evaluate hazards of the confined space.

A copy of the completed plan is to be forwarded to KU-EHS Dept. for review, approval and recordkeeping.

## **Review of PRCS Program**

Entry operations are to be reviewed when there is reason to believe that the measures taken may not protect the employees and at least annually. The program is to be revised to correct any deficiencies found.

## **Entry into Non-Permit Confined Spaces**

Precautions must be taken for entry into non-permit required spaces. The space atmosphere must be tested for oxygen concentration, combustible gas or vapor, and potential toxic contaminants. Any hazardous conditions detected must be reported to the supervisor and the Environment, Health and Safety Office. Manholes and confined spaces with limited ventilation must be power ventilated with a blower (minimum capacity 750 cfm) operating at its maximum rated speed for a minimum of five (5) minutes. Larger confined spaces (greater than 1000 cubic feet) must be ventilated for at least ten (10) minutes. The blower must be in continuous operation while anyone is in the confined space.