



Hazards

Potential hazards that employee/contractor could be exposed include:

- Engulfment.
- Presence of toxic gases.
- Presence of explosive/flammable gases.
- Oxygen Deficiency.

Certification

- All sewer manholes should be considered permit-required confined spaces until the pre-entry procedures demonstrate otherwise.
- Space may be entered without the need for a written permit or attendant provided that the space can be maintained in a safe condition for entry by mechanical ventilation alone (force air ventilation).
- Contractor should ensure any employee required or permitted to pre-check or enter an enclosed/confined space have received the appropriate training as required by OSHA.
- Contractor should have a written copy of operating and rescue procedures at the work site for the duration of the job.
- The Confined Space Pre-Entry Check List must be completed by the LEAD WORKER before entry into a confined space. This list verifies completion of the required pre-entry procedures. The check list should be maintained at the job site for duration of the job.
- If circumstances dictate an interruption in the work, the space must be re-evaluated and a new check list must be completed.

Control of atmospheric and engulfment hazards

Pumps and Lines

- All pumps and lines which may reasonably cause contaminants to flow into the entry space shall be disconnected, blinded and locked out, or effectively isolated by other means to prevent development of dangerous air contamination or engulfment.

Surveillance

- The surrounding area should always be surveyed to avoid hazards such as falling object, drifting vapors/gases or sewer.



Testing

- Atmosphere within the space should be tested before entry to determine whether dangerous air contamination and/or oxygen deficiency exists.
- Testing shall be performed by the LEAD WORKER who has successfully completed the appropriate training.
- The minimum parameters to be monitored are;
 - Oxygen deficiency,
 - LFL, and
 - Hydrogen sulfide concentration.
- A written record of the pre-entry test results should be made and kept at the work site for the duration of the job. The supervisor should certify in writing, based upon the results of the pre-entry testing, that all hazards have been eliminated. Contractor should provide a copy of the record to KSU's project manager.
- When work is being performed in two adjoining, connecting spaces, the most hazardous conditions shall govern the operations

Entry Procedures

- If there are no non-atmospheric hazards present and if the pre-entry tests show there is no dangerous air contamination and/or oxygen deficiency within the space and there is no reason to believe that any is likely to develop, entry into and work within may proceed.
- Continuous testing of the atmosphere in the immediate vicinity of the workers within the space shall be accomplished.
- The workers will immediately leave the permit space when any of the gas monitor alarm set points are reached as defined. Workers will not return to the area until a SUPERVISOR who has completed the gas detector training has used a direct reading gas detector to evaluate the situation and has determined that it is safe to enter.

Rescue

- Contractor should make arrangements for rescue services where necessary.