READ FIRST

Confined Space Entry Procedure

1. **The purpose of a Confined Space Entry Procedure is to save lives by controlling the inherent hazards of a confined space prior to entry.**
    a. If possible, avoid entering a confined space. Every consideration should be given to completing the task from the outside.
    b. An entry is considered to have occurred when any part of a person's body crosses the plane of an opening into the space.
2. **The Confined Space Entry Procedure at San José State University is managed by the Environmental Health and Safety within Facilities Development and Operations Department.**
    a. Employees who enter confined spaces must be trained in confined space entry, respiratory protection and Emergency First Aid and CPR.
    b. Employees who enter confined spaces must first evaluate the space to determine if the space is a permit required confined space. The attached Confined Space Determination Form is designed to assist employees in determining whether the work environment is considered a confined space and a permit required confined space.
    c. This Confined Space Entry Procedure is available from Environmental Health and Safety. Forms are returned to Environmental Health and Safety once the determination is completed and approval is needed to issue a confined space entry permit.
3. **A Permit-Required Confined Space fits the definition of a confined space and has one or more of the following characteristics:**
    a. Contains or has a potential to contain a hazardous atmosphere (presence of toxic chemicals, lack of oxygen).
    b. Contains a material that has a potential for engulfing the entrant (e.g., liquid, soil).
    c. Contains inwardly converging walls or a floor that slopes downward and tapers to a smaller cross-section where an entrant could be trapped or asphyxiated.
    d. Contains any other recognized serious safety or health hazard (e.g., unsafe temperature, electrical shock, corrosive chemicals).
4. **A Non-permit Confined Space fits the definition of a confined space, but does not contain or have the potential to contain any atmospheric hazard capable of causing death or serious physical harm.**
5. **A hazardous atmosphere is any atmosphere that may incapacitate, injure, or impair an employee's self-rescue or lead to acute illness or death to workers and rescuers who enter confined spaces. The following are examples of hazardous atmospheres:**
    a. Flammable or explosive gas, vapor, or mist in a concentration greater than 10 percent of its lower flammable limit (LFL) or lower explosive limit (LEL).
    b. Combustible dust suspended in air, which obscures vision at a distance of five feet or less.
    c. Atmospheric oxygen concentration levels below 19.5% (oxygen deficiency) or above 23.5% (oxygen enrichment) at sea level.
    d. Atmospheric concentration of any substance with an acutely toxic effect above its PEL, and any other atmospheric condition that is IDLH. **CONTINUE ON NEXT PAGE >>>**

6. **Oxygen deficiency can be caused by:**
    a. Combustion (fire, welding, and operation of internal combustion engines all consume oxygen).
    b. Formation of rust (consumes oxygen).
    c. Decomposition of organic matter (consumes oxygen and produces flammable methane gas, which can also displace oxygen).
    d. Displacement by a heavy gas that has settled in a low-lying space or by another vapor (an inert gas such as argon, carbon dioxide, or nitrogen) used to purge the space.
7. **Atmospheric Testing Protocol Using a Multi-gas Monitoring Device.**
    a. Oxygen is tested first because most combustible gas and toxic atmosphere meters are oxygen-dependent and will not provide reliable readings when used in oxygen-deficient atmospheres. In addition, both oxygen-deficient and oxygen – enriched atmospheres are extremely hazardous to workers' health and safety.
    b. Combustible gases and vapors are tested next because the threat of fire and explosion is both more immediate and more life-threatening, in most cases, than exposure to toxic gases and vapors.
    c. Toxic atmospheres are tested last.
8. **Respiratory Protection Requirements.**
    a. An emergency exists and entry cannot be delayed. Assume that an IDLH atmosphere exists.
    b. There is an inert atmosphere or testing shows that an IDLH exists and additional ventilation cannot reduce concentrations to safe levels.
    c. Current testing indicates atmosphere to be safe, but unsafe conditions could reasonably be expected to develop at any time.
9. **All authorized entrants and rescuers entering Permit Requires Confined Spaces are required to use full body harnesses and retrieval lines, unless it is determined that the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue operation.**
10. **Rescue.**
    a. Self-rescue is the preferred plan. The self- rescue plan provides entrants with the best chance of escaping a permit space when hazards are present. Whenever authorized entrants recognize their own symptoms of exposure to a dangerous atmosphere, or when a prohibited condition is detected, entrants are still able to escape from the space unaided and as quickly as possible.
    b. Non-entry rescue is the next-best approach when self-rescue is not possible because non-entry rescue can be started right away and prevents additional personnel from being exposed to unidentified and/or uncontrolled confined space hazards.
    c. Entry rescue involves rescuers entering the space to retrieve the entrant and/or provide the victim with emergency assistance such as CPR, first aid, and air via a supplied air respirator (SAR), if needed.

Proceed to the Confined Space Determination Form on the next page. >>>

Confined Space Determination Form

Confined Space Jobsite Description

Permit Requestor >	**Work Order Number: >**
Permit Request Date >	**Work Plan:**
Job Site Location >	
Manhole ID / Description >	

Confined Space Determination

1.	**Is this space a Confined Space in accordance with the criteria listed here?** __(1) Is large enough and so configured that an employee can bodily enter and perform assigned work; ***and*** __(2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); ***and*** __(3) Is not designed for continuous employee occupancy.	**If NO>>NOT A CONFINED SPACE** Enter and proceed with the regular work assignment. Supervisor Signature>_____
2.	**If YES …** **Survey the surrounding area for known or potential hazards. Are hazards present?** __Atmospheric, __engulfment, __entrapment, __internal convergent configurations, __List any other safety hazards_____ _____ **Atmospheric Test Results:** Oxygen %_____ H2S ppm____ LEL %_____ CO ppm_____	**If NO>>NON-PERMIT REQUIRED CONFINED SPACE** Enter and proceed with the regular work assignment. Supervisor Signature>_____
3.	**If YES …** **Can the hazards be eliminated?** List how the hazards are eliminated:_____ _____ _____ _____	**If YES>>NON-PERMIT REQUIRED CONFINED SPACE** Eliminate the hazards and Reclassify to a Non-Permit Required Confined Space. Enter and proceed with the regular work assignment. Supervisor Signature>_____
4.	**If NO …** **Can the space be maintained in a condition safe to enter by continuous forced air ventilation only?**	**If YES>>NON-PERMIT REQUIRED CONFINED SPACE** ***VENTILATE SPACE*** and Reclassify to Non-Permit Required Confined Space. Enter and proceed with the regular work assignment. Supervisor Signature>_____
5.	**If NO …** ***Submit a Permit Required Confined Space Entry Permit Form on the next page for approval to proceed….***	***REQUEST ENTRY INTO A PERMIT REQUIRED CONFINED SPACE.*** **SUBMITTED BY:** Supervisor Signature>_____

Authorized Entry for a Non-permit Required Confined Space

1) If there are no atmospheric hazards present
   a) and if the pre-entry tests show there is no dangerous air contamination and/or oxygen deficiency within the space
   b) and there is no reason to believe that any is likely to develop,
   c) entry into and work within may proceed.
2) Continuous testing of the atmosphere in the immediate vicinity of the workers within the space will be performed.
3) The workers will immediately leave the permit space when any of the gas-monitor alarm set points are reached.
4) 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.
5) Self-Rescue and/or Non-entry Rescue is necessary. Arrangements for entry rescue are not required if hazards are eliminated or controlled.
6) Employees will not work alone.
7) The minimum Personal Protective Equipment (PPE) for entry includes
   a) eye, head, hand, and foot protection
   b) and a full body harness.

Permit Required Confined Space Entry Permit Form

1. Work Assignments	*Responsible Person*	*Special Instructions*
Trades Manager>	**1.**	
Standby Attendant>	**2.**	
Entrant>	**3.**	
Hoist Operator>		
Radio>		
Communication Runner>		
Gas Testing and Recordkeeping>		
CPR – 1st Aid Certified>		

2. Employee Training and Pre-Entry Briefing		*Special Instructions*
1. Safe Entry & Rescue Training Conducted?	*Yes / No*	
2. Mandatory Pre-Entry Briefing Conducted?	*Yes / No*	
3. Does the job require special training?	*Yes / No*	

3. Emergency Contact / Equipment Information	*Special Instructions*
Nearest Phone Land Line>	
Radio Channel>	
UPD Phone>	
UPD Radio Channel>	
First Aid Kit Location>	

4. Rescue Plan	*Entry Rescue Team Members*	*Rescue / Hoist Equipment at Jobsite*
__1. Self Rescue, ***or***	1	*__Hoist & Harness & Rigging*
__2. Non entry Rescue – Hoist, ***or***	2	*__Supplied Air Respirator & Air Supply*
__3. Entry Rescue Team, ***or***	3	*__SCBA*
__4. Entry Rescue – 911 Fire Rescue	4	*__Stretcher*

5. Safety Hazard Elimination Checklist

	Yes	*No*	*N/A*
1. All lines leading to and from the confined space have been blinded or disconnected.			
2. Electrical service is disconnected or locked out.			
3. All grounding and bonding cables in place.			
4. All lighting, fitting, and extension cords are approved explosive proof equipment.			
5. Ground Fault Circuit Interrupter devices checked and functioning.			
6. All ignition sources are isolated and eliminated.			
7. Supplied Air Respirator Systems are checked and in proper operation.			
8. Safety Harnesses and life lines checked and in proper operation.			
9. Required PPE clothing, gloves, and boots, are provided and used.			
10. Employees have been trained in the use, care, and limitations of their respiratory protection equipment.			
11. Rescue / standby employees are trained in emergency procedures and resuscitation.			
12. Rescue tripod and rigging provided and inspected for use.			
13. Emergency systems such as respiratory protection, fire extinguishers, communications, are tested and ready for use.			
14. Barricade erected around the manhole and area cordoned to control access.			
15. Ventilation Equipment provided and in place and in use.			

6. Personal Protective Equipment Plan *(Check all that applies)*

Eye Protection	**Respiratory Protection**
__Chemical Goggles	__Air Line Respirator
__Face Shield & Chemical Goggles	__Air Line w/Egress Bottle
__Safety Glasses	__Cartridge Respirator
Extremities	__Cartridge Type: >>
__Hard Hat	
__Gloves: Type >>	**Other PPE**
__Boots	__Hearing Protection
__Hoods	__Harness and Lifeline (top entry)
Body Protection	__Chest Harness and Lifeline (side entry)
__Coveralls, Cloth	__Tripod Hoist and Equipment
__Tyvek, White	__
__Tyvek, Yellow (Coated)	__
__Waterproof Suit	__

7. Oxygen Deficiency – Toxic Gas Monitoring Equipment

Portable Gas Detector ID #	Make	Model	Gas Sensors	Calibration Date
1.			____*Oxygen* ____*H2S* ____*LEL* ____*CO*	
2.			____*Oxygen* ____*H2S* ____*LEL* ____*CO*	

8. Atmospheric Testing: Pre-Entry & 15 min Periodic Testing

Date	Time	Oxygen %	H2S (ppm)	LEL %	CO (ppm)	**Ventilation Plan**
						Ventilation Method __Natural Ventilation __Forced Exhaust __Forced Supply **Time Duration Needed** __Ventilate Continuously __Ventilate Until Monitoring is Satisfactory __Other:

9. Entrant Log *[Entrant's Name]*	*Time In*	*Time Out*
1		
2		
3		
4		
5		
6		

10. Permit Approved		*11. Permit Work Completed*	
Supervisor:	Date	Supervisor:	Date
EHS Director:	Date	EHS Director	Date