

## Steam Manholes -- Permit Required Confined Space Entry Permit

## 1. Steam Manholes Entry Procedure and Permit

**\*\*All shaded areas must be completed by the Entry Supervisor or Entrant\*\***

2. Work to be Performed and Location:	3. Date Issued:        /        /  Time Issued:        : <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.
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**4. Permit Space Hazards** (X = Potential Hazard or Testing Requirement)

<b>X</b>	Oxygen - hazardous when less than or equal to 19.5% <b>OR</b> greater than or equal to 23.5 %.		Mechanical Hazards (Pneumatic, Hydraulic, Electrical, Chemical, Steam, Falling Objects, Etc.)
<b>X</b>	Flammable Gases or Vapors - hazardous when greater than 10% of LFL / LEL.		Engulfment Potential
<b>X</b>	Hydrogen Sulfide - hazardous when greater than 10 PPM	<b>X</b>	Physical Hazards - (bees, insects, spiders, heat during the summer)
<b>X</b>	Carbon Monoxide - hazardous when greater than 50 PPM (always look for when welding or near a fuel combustion source (cars, utility carts, etc.)	<b>X</b>	Confined Space Configuration, Layout or Arrangement
	Other Toxics:		

**5. Additional Permits or Forms** (Please attach if required)

Hot Work Permit: ☐YES ☐NO ☐N/A      LOTO / Hazardous Energy Control Procedure: ☐YES ☐NO ☐N/A      Other:

**6. Equipment Required for Entry & Work** (Check box when complete)

<input type="checkbox"/> <b>PPE</b>	Eye protection, body harness, other PPE for heat if necessary (gloves, long sleeves, etc.).
<input type="checkbox"/> <b>Atmospheric Testing</b>	4-Gas Meter required for testing. Test atmosphere in manhole by using stratified method of checking atmosphere at different levels within the space.
<input type="checkbox"/> <b>Respiratory Protection</b>	Not required for this space under normal atmospheric conditions. If contaminant levels are outside limits, ventilate space before entry.
<input type="checkbox"/> <b>Ventilation Equipment</b>	Full ventilation is required before and during entry unless the space is proven to be free of atmospheric hazards or no atmospheric changes will occur due to work operations or manhole conditions.
<input type="checkbox"/> <b>Rescue Equipment</b>	Set up rescue tripod with 4-way hauling system to pull out entrant in the event of an emergency. Entrant must wear harness and be connected to the 4-way hauling system.

<b>7. Communication method used by attendants and entrants (Check all that apply)</b>	<b>8. Confined Space Rescue</b>
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<input type="checkbox"/>	<b>Radio</b>	<input type="checkbox"/>	The assigned confined space attendant is responsible for evacuating entrants in the event of an emergency by means of vocal communication or retrieval equipment used for the entry. At no time will the attendant enter the confined space. In the event the attendant is unable to evacuate the entrant(s), the Charlotte Fire Department will be notified by UNC Charlotte Police Dispatch at 704-687-2200 to provide rescue assistance. Upon the arrival of rescue personnel, the attendant should brief the rescuers of any notable information.
<input type="checkbox"/>	<b>Voice</b>		
<input type="checkbox"/>	<b>Other</b>		

<b>9. Authorized Entrants</b> (List by name)	<b>10. Authorized Attendants</b> (List by name)
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### 11. Preparation for Entry (Check boxes when complete)

<input type="checkbox"/>	Notify affected department of service interruption and complete the Confined Space Entry Permit and any other required permits and forms.
<input type="checkbox"/>	Inspect all required equipment, tools and PPE prior to entry. Barricade the area to prevent unauthorized entry or access. Setup necessary equipment for entry operations.
<input type="checkbox"/>	Ensure that all hazardous energy is isolated per the specific Hazardous Energy Control Procedure. All steam lines, valves and controls must be fully blocked and controlled, or University steam service discontinued before entering the manhole. Allow lines to cool as much as possible before entering the manhole.
<input type="checkbox"/>	Sign in Authorized Entrants in Step 9 and Sign in Attendants in Step 10.
<input type="checkbox"/>	Take a preliminary atmospheric reading with approved 4-gas meter and record reading on Step 12. Atmosphere should be continuously tested during entry. Periodically record sample readings in Step 12. Ventilate as necessary. Test atmosphere from the bottom to the top of the manhole so that all levels are checked.
<input type="checkbox"/>	Upon eliminating or controlling all hazards and the Entry Supervisor signing Step 13, proceed to make entry.

12. Atmosphere Testing Record Acceptable Conditions	Pre-Entry Results	Entry #1 Results	Entry #2 Results	Entry #3 Results	Entry #4 Results	Entry #5 Results
Time of Sampling						
CH <sub>4</sub> – Methane - Less than 10% of LEL / LFL						
O <sub>2</sub> - Oxygen Range - Minimum allowable = 19.6% to Maximum allowable = 23.4%						
H <sub>2</sub> S - Hydrogen Sulfide - < than 10 PPM						
CO - Carbon Monoxide - < than 35 PPM						
Other Toxic:						
Tester Initials						

### 13. Authorization by Entry Supervisors

I certify that all required precautions have been taken and necessary equipment is provided for safe entry and work in this steam manhole confined space.

Printed Name	Signature	Date	Time	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.
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14. Permit Cancellation (Complete at the end of job not to exceed 24 hours)	Date	Time	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.
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This permit must be posted at the job site -- One Copy to Department's File and One Copy to EHS Office (Fax 7-5302 or EHS Building)