

## Cooling Towers -- Permit Required Confined Space Entry Permit

### 1. Cooling Towers Entry Procedure and Permit

Cooling Towers are permit required confined spaces if the atmosphere inside the cooling tower is changed by welding, cutting, burning or the use of solvents or cleaners that cause vapors or fumes within the tower. \*\*All shaded areas must be completed by the Entry Supervisor or Entrant\*\*

### 2. Work to be Performed and Location:

### 3. Date Issued:        /        /

Time Issued:        :        ☐ a.m. ☐ p.m.

### 4. Permit Space Hazards (X = Potential Hazard or Testing Requirement)

<input checked="" type="checkbox"/>	Oxygen - hazardous when less than or equal to 19.5% <b>OR</b> greater than or equal to 23.5 %.	<input checked="" type="checkbox"/>	Mechanical Hazards (Pneumatic, Hydraulic, Electrical, Chemical, Steam, Falling Objects, Etc.)
<input checked="" type="checkbox"/>	Flammable Gases or Vapors - hazardous when greater than 10% of LFL / LEL.	<input checked="" type="checkbox"/>	Engulfment Potential
<input checked="" type="checkbox"/>	Hydrogen Sulfide - hazardous when greater than 10 PPM	<input checked="" type="checkbox"/>	Physical Hazards – (bees, insects, spiders, heat during the summer)
	Carbon Monoxide - hazardous when greater than 50 PPM (always look for when welding or near a fuel combustion source (cars, utility carts, etc.)		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"/> PPE	Safety glasses/goggles to prevent splashes of water and dirt/sediment into eyes while working in wet areas, such as cooling tower sump tanks. Tower cleaning chemicals/solvents require specialized gloves/PPE.... see SDS.
<input type="checkbox"/> Atmospheric Testing	4-Gas Meter is required in cooling towers when the atmosphere will be changed by welding, cutting, burning or solvent/chemical use that will cause fumes/vapors. Continuous monitoring is required throughout the duration of the entry.
<input type="checkbox"/> Respiratory Protection	Not required under normal operations. If 4-gas meter indicates that atmospheric conditions are not safe, do not enter space without additional ventilation.
<input type="checkbox"/> Ventilation Equipment	Welding, cutting, brazing, solvent/chemical usage can cause a change in atmospheric conditions. Monitor space continuously with a 4-gas meter.
<input type="checkbox"/> Rescue Equipment	Not required under normal conditions. Attendant should be ready to call for help in the event that the entrant is injured or becomes incapacitated.

### 7. Communication method used by attendants and entrants (Check all that apply)

<input type="checkbox"/>	Radio
<input type="checkbox"/>	Voice
<input type="checkbox"/>	Other

### 8. Confined Space Rescue

☐ 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.

### 9. Authorized Entrants (List by name)

### 10. Authorized Attendants (List by name)

### 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. Rotating fan blades must be chocked in stationary position unless guard can prevent entry to blade area.
<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. Open all hatchways to allow ventilation within the tower.
<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 cooling tower 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)