### 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:** / / 
   4. **Time Issued:** : a.m. p.m.

4. **Permit Space Hazards**
   
<table>
<thead>
<tr>
<th>X</th>
<th>Oxygen - hazardous when less than or equal to 19.5% OR greater than or equal to 23.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Flammable Gases or Vapors - hazardous when greater than 10% of LFL / LEL</td>
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<tr>
<td>X</td>
<td>Hydrogen Sulfide - hazardous when greater than 10 PPM</td>
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<tr>
<td>X</td>
<td>Carbon Monoxide - hazardous when greater than 50 PPM (always look for when welding or near a fuel combustion source (cars, utility carts, etc.))</td>
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<tr>
<td></td>
<td>Confined Space Configuration, Layout or Arrangement</td>
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</tbody>
</table>

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

6. **Equipment Required for Entry & Work**
   - PPE
   - Atmospheric Testing
   - Respiratory Protection
   - Ventilation Equipment
   - Rescue Equipment

7. **Communication method used by attendants and entrants**
   - Radio
   - Voice
   - 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)
    - Notify affected department of service interruption and complete the Confined Space Entry Permit and any other required permits and forms.
    - 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.
    - 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.
    - Sign in Authorized Entrants in Step 9 and Sign in Attendants in Step 10.
    - 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.
    - Upon eliminating or controlling all hazards and the Entry Supervisor signing Step 13, proceed to make entry.

12. **Atmosphere Testing Record Acceptable Conditions**

<table>
<thead>
<tr>
<th>Time of Sampling</th>
<th>Pre-Entry Results</th>
<th>Entry #1 Results</th>
<th>Entry #2 Results</th>
<th>Entry #3 Results</th>
<th>Entry #4 Results</th>
<th>Entry #5 Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH4 - Methane - Less than 10% of LFL / LFL</td>
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<td>O2 - Oxygen Range - Minimum allowable = 19.6% to Maximum allowable = 23.4%</td>
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<td>H2S - Hydrogen Sulfide - &lt; 10 PPM</td>
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<td>CO - Carbon Monoxide - &lt; 35 PPM</td>
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<td>Other Toxics:</td>
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</table>

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** a.m. p.m.

14. **Permit Cancellation**
    (Complete at the end of job not to exceed 24 hours)

   **Date** | **Time** a.m. 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)

*July 2018*