Confined Space Classifications

The following were determined to be confined spaces; they may not be permit required that employees of the Division of Facilities may encounter:

Utility Tunnels, Crawl Spaces, Ventilation Duct Work, Vaults and Pits. These may be reclassified as permit required if there is a known or history of atmospheric hazards or that there is a serious safety or health hazards that exists such as a large steam leak, engulfment, welding, toxic chemical use, exposed live electrical wires, flooding, or atmospheric changes.

The following have been determined to be permit required confined spaces that employees of the Division of Facilities may encounter:

Manholes (except for tunnels unless reclassified as permit required due to a known hazard), Electrical Vaults, Sewers, Tanks, Boiler/Boiler Stacks and Ventilation Duct Work in these areas: Chill Plant Tower Pit, Air Handling Units with chemical exposure having limited access entrance and exit.

The Standard Operating Procedure is an extension of the KSU Confined Space policy. All staff must understand their role and responsibility as assigned.

Air monitoring must be conducted in all confined spaces permit and non-permit spaces.

**Standard Operating Procedure for Tunnels or Confined Space (Non-Permit)**

**Prior to Entrance Tunnel or Confined Space (Non-Permit)**

1. Two Persons at all times.


4. Visual Inspection of outside area of the entrance into the tunnel or confined space area. Make sure that there is no operating equipment or vehicles are in the vicinity that could contaminate the air quality in the tunnel or confined space.

5. Entryway to tunnels or confined space shall be secured. Doors, manhole covers, screens, etc., required to be left open must be manned or properly barricaded.

6. Ventilation of the tunnels or confined space by forced air using the portable unit.
7. Monitor tunnel or confined space entryway air quality prior to entrance using the four gas monitor.

8. Radio Desk One giving them entrance location, expected time frame of project and number of people entering during normal operating hours Monday thru Friday 8:00 a.m. to 5:00 p.m. after hours Radio KSUPD. Minor Repairs will complete the “Access to Utility Tunnel” log sheet. Minor Repairs will monitor expected time frame. In the event contact is not made within the specified time frame Minor Repairs will contact the entrant. If the entrant is unable to be reached Minor Repairs will contact the Departmental Supervisor, Manager or Director.

Special Lighting Required in Tunnels: This procedure will remain in effect until appropriate lighting is installed in the tunnels.

Regular/Emergency Maintenance: Employees must provide adequate lighting at entry and exit points using ambient light during normal daylight hours testing at 250 lumens; after dark providing portable lighting using a Standard 100 watt light bulb at 950 lumens. A portable Halogen Lamp 500 watt bulb at 9200 lumens will be used along the section of tunnel where work is being performed.

Tunnel Inspections: The Tunnel Inspectors are required to have two types of portable bright lights while in the tunnel. A flashlight will be used at 75 lumens and a hard hat headlight will be used at 35-42 lumens. In addition, workers above ground will open access points to introduce ambient light from above testing at 250 lumens.

Entrance into Tunnel or Confined Space (Non-Permit)

9. Evaluate the tunnel or confined space for any unknown hazards. Make sure to control all known hazards.

10. Test communication that there is not a dead zone. If dead zone is encountered use an alternate source such as a cell phone.

11. Make sure the air monitor is used continuously while in the tunnels or confined space area.

12. Perform task. Control hazards by working de-energized.

Exiting from Tunnel or Confined Space (Non-Permit)

13. Ensure all tools are removed from area.

14. Radio Desk One giving the exit time and number of people exiting during normal operating hours Monday thru Friday 8:00 a.m. to 5:00 p.m. after hours Radio KSUPD. Minor Repair will complete the form and keep it on file.
15. Turn off Air Monitor and return it to the appropriate Docking Station.

16. Prior to Docking the Air Monitor take a photo copy of the PEAK readings. Write the date and tunnel location and send the Safety Training Office. If you do not have access to a photo copier there is a form at the docking station to record results.

If at anytime the monitor goes off for any reason or if you encounter a serious hazard you must evacuate the tunnels or confined space immediately.

**Standard Operating Procedure for Permit Required Confined Spaces**

**Prior to Entrance into Permit Required Confined Space**

1. Confined Space Supervisor will define personnel roles such as entrant and attendant. Two Persons at all times. **If the permit required space involves the tunnels it will require three persons.**

2. Confined Space Supervisor will complete the entrant permit and review with assigned personnel.


5. Entryway to tunnels or confined space shall be secured. Doors, manhole covers, screens, etc., required to be left open must be manned or properly barricaded.

6. Visual Inspection of outside area of the entrance into the permit confined space. Make sure that there in no operating equipment or vehicles are in the vicinity that could contaminate the air quality in the tunnel.

7. Ventilation of the permit confined space by forced air using the portable unit.

8. Monitor permit confined space entryway air quality prior to entrance using the four gas monitor.

9. Radio Desk One giving them entrance location, expected time frame of project and number of people entering during normal operating hours Monday thru Friday 8:00 a.m. to 5:00 p.m. after hours Radio KSUPD. Minor Repairs will complete the “Access to Utility Tunnel” log sheet. Minor Repairs will monitor expected time frame. In the event contact is not made within the specified time
frame Minor Repairs will contact the entrant. If the entrant is unable to be reached
Minor Repairs will contact the Departmental Supervisor, Manager or Director.

Special Lighting Required in Tunnels: This procedure will remain in
effect until appropriate lighting is installed in the tunnels.

Regular/Emergency Maintenance: Employees must provide adequate lighting
at entry and exit points using ambient light during normal daylight
hours testing at 250 lumens; after dark providing portable lighting
using a Standard 100 watt light bulb at 950 lumens. A portable Halogen
Lamp 500 watt bulb at 9200 lumens will be used along the section of
tunnel where work is being performed.

Tunnel Inspections: The Tunnel Inspectors are required to have two
types of portable bright lights while in the tunnel. A flashlight will
be used at 75 lumens and a hard hat headlight will be used at 35-42
lumens. In addition, workers above ground will open access points to
introduce ambient light from above testing at 250 lumens.

Entrance into a Permit Required Confined Space

10. Evaluate the permit confined space for any unknown hazards. Make sure to
    control any existing hazards.

11. Test communication that there is not a dead zone. If dead zone is encountered use
    an alternate source such as a cell phone.

12. Make sure the air monitor is used continuously while in permit confined space.

13. Perform task. Control hazards by working de-energized.

Exiting the Permit Required Confined Space

14. Ensure all tools are removed from area.

15. Radio Desk One giving the exit time and number of people exiting during normal
    operating hours Monday thru Friday 8:00 a.m. to 5:00 p.m. after hours Radio
    KSUPD. Minor Repair will complete the form and keep it on file.

16. Prior to Docking the Air Monitor record PEAK readings on permit form. Permits
    should be sent to the Safety Training Office.

17. Turn off Air Monitor and return it to the appropriate Docking Station.

18. The Confined Space Permit form will be kept on file in the Departmental
    Supervisor Safety Notebook. All permits must be kept on file for a period of one
    year.
If at anytime the monitor goes off for any reason or if you encounter a serious hazard you must evacuate the permit confined space immediately.
Confined Space Entry Permit

Location of space: ____________________________________________________________

Date: _______________ Time: _______________ Expiration: _______________

Purpose of entry: __________________________________________________________________

Authorized Entrant(s): __________________________________________________________

Attendant(s): _________________________________________________________________

Entry Supervisor: __________________________________________________________________

Rescue contact: KSUPD Phone #: 532-6412

Rescue Procedure: __________________________________________________________________

Hazards:

Atmospheric Hazards

☐ Oxygen Deficiency (19.5%) Enriched (23.5%)
☐ Flammable Materials
☐ Toxic Substances

Engulfment Hazards

☐ Flowable Materials

Configuration Hazards

☐ Downward Sloped Floors
☐ Inwardly Converging Walls

Equipment:

Lockout/Tagout yes no
Ventilation yes no
Isolation yes no
Respirators yes no
Escape Respirator yes no
Fire Extinguisher yes no
Lighting yes no
Harness yes no

Rescue Equipment yes no
Lifelines yes no
Radios yes no
Other PPE yes no
Hard Hat yes no
Goggles yes no
Ear Plugs yes no
Other Permits yes no
Appendix A

**Requirements Completed**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Please Mark with an X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lockout/Tagout/De-energize</td>
<td>_____</td>
</tr>
<tr>
<td>Lines(s) Broken-Capped-Blanked</td>
<td>_____</td>
</tr>
<tr>
<td>Purge-Flush and Vent</td>
<td>_____</td>
</tr>
<tr>
<td>Ventilation</td>
<td>_____</td>
</tr>
<tr>
<td>Secure Area (Post and Flag)</td>
<td>_____</td>
</tr>
<tr>
<td>Breathing Apparatus</td>
<td>_____</td>
</tr>
<tr>
<td>Resuscitator – Inhalator</td>
<td>_____</td>
</tr>
<tr>
<td>Standby Safety Personnel</td>
<td>_____</td>
</tr>
<tr>
<td>Body Harness w/”D” ring</td>
<td>_____</td>
</tr>
<tr>
<td>Emergency Escape Retrieval Equip</td>
<td>_____</td>
</tr>
<tr>
<td>Lifelines</td>
<td>_____</td>
</tr>
<tr>
<td>Fire Extinguishers</td>
<td>_____</td>
</tr>
<tr>
<td>Lighting (Explosive Proof)</td>
<td>_____</td>
</tr>
<tr>
<td>Protective Clothing</td>
<td>_____</td>
</tr>
<tr>
<td>Respirator(s) (Air Purifying)</td>
<td>_____</td>
</tr>
<tr>
<td>Burning and Welding Permit</td>
<td>_____</td>
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</table>

Note: Items that do not apply enter N/A in the blank.

**Supervisor/Attendant Air Monitoring:**

<table>
<thead>
<tr>
<th>Instrument Serial #:</th>
<th>Manufacturer #:</th>
</tr>
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<tbody>
<tr>
<td>____________________</td>
<td>_______________</td>
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</table>

<table>
<thead>
<tr>
<th>Factory Calibration Date:</th>
<th>Bump Test Date:</th>
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<tbody>
<tr>
<td>_________________________</td>
<td>_______________</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Entry</th>
<th>Reading</th>
<th>Time:________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen (19.5 – 23.5 %)</td>
<td>_______</td>
<td>--------------</td>
</tr>
<tr>
<td>Combustibles (&lt;10% LEL)</td>
<td>_______</td>
<td>--------------</td>
</tr>
<tr>
<td>CO (&lt;35 ppm)</td>
<td>_______</td>
<td>--------------</td>
</tr>
<tr>
<td>H2S(&lt;10 ppm)</td>
<td>_______</td>
<td>--------------</td>
</tr>
</tbody>
</table>
Appendix A

<table>
<thead>
<tr>
<th>Peak</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen (19.5 – 23.5 %)</td>
<td>_______</td>
</tr>
<tr>
<td>Combustibles(&lt;10% LEL)</td>
<td>_______</td>
</tr>
<tr>
<td>CO (&lt;35 ppm)</td>
<td>_______</td>
</tr>
<tr>
<td>H₂S (&lt;10 ppm)</td>
<td>_______</td>
</tr>
</tbody>
</table>

Entry Supervisor’s signature, authorizing the above conditions have been met for safe entry:_________________________ Date:_________ Time:______________
Time of cancellation:_______________ Supervisor Signature: __________________
Comments:_________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

Permit Reviewed by:

_________________________________________ Date

Attendant Signature

_________________________________________ Date

Entrant Signature

_________________________________________ Date

Entrant Signature