Appendix B

CONFINED SPACE DECISION FLOW CHART

Does the space meet ALL THREE criteria for a CONFINED SPACE?
1. Sufficiently sized and configured to enable entry and work within, and
2. Possess restricted means of entry/exit, and
3. Not designed for continuous occupancy.

NO

Apply Good Safety Judgement

YES

The space is NOT A CONFINED SPACE

Does the space meet ANY of the following characteristics for a PERMIT REQUIRED CONFINED SPACE?
1. Actual or potential Hazardous Atmosphere, or
2. Potential engulfment hazard, or
3. Internal configuration capable of entrapment or asphyxiation, or
4. Any other recognized serious safety or health hazard, or
5. Location appears on the list of Permit-Required confined Spaces (Appendix A).

NO

The space is a NON-PERMIT REQUIRED CONFINED SPACE

Notify supervisor before entry. Perform a pre-work briefing. Provide perimeter controls and emergency communication as needed.

YES

END

The space is a PERMIT-REQUIRED CONFINED SPACE

Is this space an Underground Electrical Vault?

NO

NOTIFY ENVIRONMENTAL HEALTH & SAFETY OF ENTRY INTO CONFINED SPACE.

YES

The space meets BOTH of the following criteria to use the Alternate Entry Procedure?
1. Only hazard and/or potential hazard is atmospheric, and
2. Atmospheric hazard can be safely controlled by forced air ventilation.

NO

END

YES

Notify supervisor and Environmental Health & Safety of entry into CONFINED SPACE.

Proceed with Alternate Entry Procedure Complete ENTRY PERMIT (Appendix D)
At completion of work:
1. Notify Environmental Health & Safety
2. Notify Supervisor

YES

END

NO

END

Does the space meet ANY of the following criteria?
1. The space is an Underground Electrical Installation, and
2. Entry is for routine work only, and
3. All hazards are controlled and/or locked out.

NO

END

YES

Notify supervisor and Environmental Health & Safety of entry into a PERMIT-REQUIRED CONFINED SPACE.

Proceed with PERMIT REQUIRED Confined Space Entry Procedures Complete ENTRY PERMIT (Appendix C)
At completion of work:
1. Notify Environmental Health & Safety
2. Notify Supervisor

YES

END

NO

END

Contact Environmental Health & Safety of entry into CONFINED SPACE.

Proceed with Underground Electrical Installations Procedure Complete ENTRY PERMIT (Appendix E)
At completion of work:
1. Notify Environmental Health & Safety
2. Notify Supervisor
Appendix C

PERMIT-REQUIRED CONFINED SPACE PROCEDURES and ENTRY PERMIT

To be used for entering tanks, boilers, combustion chambers and spaces with moving machinery. University of Arkansas employees are only authorized to enter Permit-Required Confined spaces after having received training in specialized entry procedures.

Location: ___________________________  Job Supervisor: ___________________________

Equipment to be worked on: ______________________________________________________

Work to be performed: __________________________________________________________

PREPARATION

1. Notify EH&S
2. Follow appropriate pre-entry Lock Out/Tag Out (LOTO) procedures
3. Check air monitor calibration status and battery condition
4. Arrange for ventilation equipment and power supply as needed
5. Arrange for attendant and communication, as required
6. Arrange for rescue equipment, as required
7. Protect Entry Perimeter

ON-SITE MONITORING

1. Test air at the top of the space, middle and bottom of the space, then record results.
2. If the combustibility reading at the bottom is greater than at the top of the space, notify your supervisor and the Office of Environmental Health and Safety (EH&S)
   **DO NOT ENTER THE SPACE!**
3. If the air is not safe, ventilate, purge and retest. If the atmosphere does not clear
   **DO NOT ENTER THE SPACE!**
4. Ventilate the space for a minimum of 5 minutes
5. Continuously monitor the space and record the results every hour. Retest the air after breaks and lunch

ATMOSPHERIC CHECK: INITIAL

<table>
<thead>
<tr>
<th>Instrument:</th>
<th>Time: ___________________________</th>
<th>Name: ___________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen:</td>
<td>___________________________</td>
<td>(19.5% to 23.5%) Model Number:</td>
</tr>
<tr>
<td>Explsive:</td>
<td>___________________________</td>
<td>(less than 10%) Serial Number:</td>
</tr>
<tr>
<td>CO Toxic:</td>
<td>___________________________</td>
<td>(less than 35 ppm) Calibration Date:</td>
</tr>
<tr>
<td>H2S Toxic:</td>
<td>___________________________</td>
<td>(less than 10 ppm) Signature:</td>
</tr>
</tbody>
</table>

PREPARATION

<table>
<thead>
<tr>
<th>Source Isolation (no entry required)</th>
<th>N/A</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock Out/Tag Out Complete</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumps or Lines Disconnected</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Other</td>
<td></td>
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</tbody>
</table>
Appendix C
PERMIT-REQUIRED CONFINED SPACE PROCEDURES and ENTRY PERMIT

VENTILATION

<table>
<thead>
<tr>
<th>VENTILATION MODIFICATION</th>
<th>N/A</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Ventilation</td>
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<td></td>
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<tr>
<td>Other</td>
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</tbody>
</table>

VENTILATION MODIFICATION

ATMOSPHERIC CHECK: AFTER ISOLATION and VENTILATION

Time: ________________________________

Oxygen: ____________________________ (19.5% to 23.5%)

Explosive: ________________________ (less than 10%)

CO Toxic: ________________________ (less than 35 ppm)

H\textsubscript{2}S Toxic: ______________ (less than 10 ppm)  Signature: ________________________________

COMMUNICATION PROCEDURES: ____________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

RESCUE PROCEDURES: ________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

If an emergency should occur, first summon help. Call 9-1-1 and request help from the Fayetteville Fire Department. Tell the operator that you have a “Confined Space Rescue” situation. If non-entry rescue equipment is in place, initiate rescue. If a person is down for no apparent reason, you must assume that toxic gases and/or oxygen deficient atmosphere conditions exist.

DO NOT ENTER THE SPACE!

TRAINING

<table>
<thead>
<tr>
<th>PRINT NAME (attendant, entrant, back-up or rescue)</th>
<th>YES</th>
<th>NO</th>
<th>CURRENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

2
# Appendix C

## EQUIPMENT

<table>
<thead>
<tr>
<th>TYPE</th>
<th>N/A</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct reading Four Gas Monitor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety harness and Lifeline for entry and stand-by personnel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hoisting equipment</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Powered communications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCBA’s for entry and stand-by persons</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Protective clothing</td>
<td></td>
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<tr>
<td>All electric equipment listed Class I, Group D and non-sparking tools</td>
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<tr>
<td>Other</td>
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</tbody>
</table>

## CONTINUOUS ATMOSPHERIC MONITORING (record test every 20 minutes)

<table>
<thead>
<tr>
<th>Time of Reading</th>
<th>(O₂) Oxygen Range (19.5%-23.5%)</th>
<th>(LEL) Lower Explosion Limit</th>
<th>(CO) Carbon Monoxide Less than 35 ppm</th>
<th>(H₂S) Hydrogen Sulfide Less than 10 ppm</th>
<th>Tester’s Signature</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

## AUTHORIZATION

We have reviewed the work authorized by this permit and the information contained here-in. Written instructions and safety procedures have been received and are understood. Entry cannot be approved if any of the TABLE items are marked in the “NO” column. This permit is not valid unless all appropriate items are completed and signatures obtained.

<table>
<thead>
<tr>
<th>TITLE</th>
<th>PRINT NAME</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(attendant, entrant, back-up or rescue)</td>
<td></td>
<td></td>
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<tr>
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<td></td>
<td></td>
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</tbody>
</table>

Date/Time Entered ___________________________ Date/Time Exited ___________________________

Permit Expiration Date ___________________________

Supervisor’s Signature ___________________________ Date ___________________________

(REQUIRED)

Keep this log at the work site during the operation/Complete the form and return it to supervisor when finished
Appendix D

ALTERNATE ENTRY PROCEDURES AND PERMIT

To be used where the only hazard in the space is an actual, or potential, hazardous atmosphere that can be controlled with forced air ventilation. If these conditions change, a Confined Space Entry Permit is required.

University of Arkansas (Fayetteville) employees are only authorized to enter the confined space after having received training in specialized entry procedures.

Date: ______________________ Location: ______________________ Type of Space: ______________________

Reason for Entry: ______________________ Form Completed By: ______________________

Person(s) Entering:

<table>
<thead>
<tr>
<th>Person(s) Entering</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PREPARATION

1. Notify Environmental Health & Safety
2. Protect entry perimeter
3. Check air monitor calibration status and battery condition
4. Arrange for ventilation equipment and power supply
5. Arrange for attendant and communication

ON-SITE MONITORING

1. Test air at the top of the space through the cover. Record the results.
2. If acceptable, open the cover. Test the air at the middle and bottom of the space. Record the results.
3. If the air is not safe, ventilate, purge and retest. If the atmosphere does not clear, **DO NOT ENTER THE SPACE!**
4. Ventilate the space for a minimum of 5 minutes.
5. Continuously monitor the space and record the results every hour. Retest the air after breaks and lunch.

MEASUREMENT

<table>
<thead>
<tr>
<th>Instrument Name</th>
<th>Model</th>
<th>Calibration Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time of Reading</td>
<td>(O₂) Oxygen Safe Range (19.5% - 23.5%)</td>
<td>(LEL) Lower Explosive Limit Safe Range (less than 10%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

If an emergency should occur, first summon help. Call 911 and request help from the Fayetteville Fire Department. Tell the operator that you have a “manhole rescue situation”. If a person is down for no apparent reason, you must assume that toxic gases or oxygen deficient atmosphere conditions exist. **DO NOT ENTER THE SPACE!**

Date/Time Entered: ______________________ Date/Time Exited: ______________________

Supervisor’s Signature: ______________________ Date: ______________________

Keep this log at the work site during the operation. Complete this form and return it to supervisor when finished.
Appendix E

UNDERGROUND ELECTRICAL INSTALLATIONS ENTRY PERMIT

To be used for routine entry into meter vaults, telecommunications vaults, electrical manholes where no electrical work (other than with a Lock-Out/Tag-Out procedure) will be done. If these conditions change, a confined space entry permit is required. Routine work includes inspection, housekeeping, taking readings or similar routine low hazard work. Notify supervisor or control center before entering and upon exiting space.

The University of Arkansas (Fayetteville campus) employees are only authorized to enter confined spaces after having received training in specialized entry procedures.

Date: ______________ Location: ______________ Type of Space: ______________
Reason for Entry: ______________ Form Completed By: ______________

Person(s) Entering:

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
<th>Calibration Date</th>
</tr>
</thead>
</table>

PREPARATION

1. Notify Environmental Health & Safety
2. Protect entry perimeter
3. Check air monitor calibration status and battery condition
4. Arrange for ventilation equipment and power supply
5. Arrange for attendant (FIRST AID and CPR trained) and communication

ONSITE MONITORING

1. Test air at the top of the space through the cover. Record the results
2. If acceptable, open the cover. Test the air at the bottom of the space. Record the results.
3. If the air is not safe, ventilate, purge and retest. If the atmosphere does not clear, DO NOT ENTER THE SPACE!
4. Ventilate the space for a minimum of 5 minutes
5. Continuously monitor the space and record the results every hour. Retest the air after breaks and lunch

MEASUREMENT

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Model</th>
<th>Calibration Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Time of Reading</th>
<th>((\text{O}_2)) Oxygen Safe Range (19.5% - 23.5%)</th>
<th>((\text{LEL})) Lower Explosive Limit Safe Range (less than 10%)</th>
<th>((\text{CO})) Carbon Monoxide Safe Range (less than 35 ppm)</th>
<th>((\text{H}_2\text{S})) Hydrogen Sulfide Safe Range (less than 10 ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date/Time Entered: __________________________</td>
<td>Date/Time Exited: __________________________</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If an emergency should occur, first summon help. Call 911 and request help from the Fayetteville Fire Department. Tell the operator that you have a “manhole rescue situation”. If a person is down for no apparent reason, you must assume that toxic gases or oxygen deficient atmosphere conditions exist. DO NOT ENTER THE SPACE!

Supervisor's Signature: __________________________ Date: __________________________

Keep this log at the work site during the operation. Complete this form and return it to supervisor when finished.