



**DALHOUSIE  
UNIVERSITY**

**Department of  
Facilities Management  
Occupational Health and Safety**

## **Safe Job Instructions for Welding in a Confined Space**

**Building** \_\_\_\_\_ **Confined Space ID #** \_\_\_\_\_

**Date:** \_\_\_\_\_ **Work Order No.** \_\_\_\_\_

**Shop Doing Work** \_\_\_\_\_

### **Pre - Entry Procedures – Welding**

- Ensure that you have followed all of the requirements of the standard safe work procedure for confined spaces.
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### **Entry Procedures – Welding**

- Ensure area outside confined space is clear of all debris and obstacles.
- Ensure that all welding tools, equipment and PPE is on site.
- Perform pre entry check of all tools, equipment, hoses, cables, harnesses, respirators and other personal protective equipment.
- Ensure that all oxygen and acetylene line and cylinder connections are leak tested with an approved product before the start of work each day.
- Ensure that the welding smoke extractor is working properly.
- Ensure the cleaning and / or changing of smoke extractor filters is done in accordance with the manufacturer's requirement.
- Ensure monitoring equipment has been functionally checked, bump tested and calibrated.
- Do initial atmospheric test at entrance to tunnel.
  - Three samples are to be taken for each test:
    - close to the ceiling of the tunnel
    - halfway between the ceiling and the floor; and,
    - just above the floor
- Record all reading on the Confined Entry Permit Use additional sheets of paper if necessary.
- Ensure that the Hot Work Checklist and the Confined Entry Permit have been completed.

- If any differences or changes are noticed when comparing the findings of the present day and previous day Hot Work Checklist and Confined Space Entry Permit they must be addressed before any work begins.
- Ensure that all necessary instructions / actions on the Hot Work Checklist and Entry Permit have been followed.
- Ensure that any fixed combustible items are protected or if possible removed from the confined space during Hot Work activities.
- Compressed gas cylinders should be left outside the confined space, away from the entrance and chained securely in a vertical position.
- Compressed gas cylinder and arc welding power sources should be tended at all times when in use.
- In an emergency situation, compressed gas cylinders and arc welding equipment are to be turned off immediately.
- Set up ventilation fans at both ends of tunnel. The extraction unit is to be set up in the mechanical room of the University Club and the supply fan at the computer lab in the Chemistry Bldg. The extraction fan is to be vented through the window in the mechanical room.
- Hold pre-entry tool box talk to address scope of work, hazards, permits, work procedures and employee concerns / questions.
- Ventilate tunnel for 15 minutes before taking second set of atmospheric readings.
  - Do a second set of atmosphere test following the above noted sampling procedure
  - If all readings are within acceptable limits take a second set of samples halfway between the tunnel entrance and the worksite and a third set at the worksite.
- Ensure all entrants are wearing harness.
- Ensure at least one entrant is wearing a portable gas monitor.
- Team to do an inspection of tunnel; pipes, conduits, etc. (Note any potential hazards.)
- Any atmospheric hazards that are identified during testing or any hazards identified by tunnel inspection team must be eliminated or minimized using appropriate control measures before authorization is given to begin work.
- Feed the life line from rescue winch into tunnel as inspection is performed.
  - Attendant to assist in feeding life line into tunnel.
  - Retrieve line after inspection.
- Begin work at mechanical room end of tunnel.
- All welding and cutting must be done in compliance with Part 10 of the *Occupational General Safety Regulations* – Welding, Cutting, Burning and Soldering, applicable CSA standards and approved industry standards.

- Do as much cutting and welding of lengths of new condensate and steam line outside of tunnel as possible.
- When the new lines are assembled and in place in the tunnel perform hydronic testing..
- If hydronic test results do not comply with requirements take corrective action to achieve requirements.
- De-energize old condensate and steam lines.
- Lock Out / Tag Out old lines.
- Install new sections of lines and connect to existing lines at either end of the tunnel.
- Integrity of newly welded connections between new and old lines is to tested using x-ray inspections and magnetic particle inspections.
- Insulation of new lines with fibreglass insulation is to be done by a contractor.
- After insulating is complete remove lock out / tag out devices and re-energize the new condensate and steam lines.
- Ensure that all old piping, fibreglass insulation and other job related debris is removed from the tunnel and the mechanical room and that the entire worksite is left in an neat orderly condition.
- Re-install flooring in mechanical room and ensure hat it is safe for use.