MANHOLE ALTERNATE ENTRY PROCEDURE AND PERMIT

This permit is to be used for manhole entries where the only hazard in the space is an actual or potential hazardous atmosphere that can be controlled with forced air ventilation. Hazards created by work and equipment used in the space must be accounted for. If these conditions change, the entry must be terminated and re-evaluated referencing Yale's Confined Space Decision Flow Chart (https://ehs.yale.edu/sites/default/files/files/confined-space-flowchart.pdf). Yale employees are only authorized to enter confined spaces after having received training in specialized entry procedures.

Date:	Location:	Type of Space: MANHOLE
Reason for Entry:		
Form Completed By:	Attendant:	
Entrant(s):		

PREPARATION

1. Obtain and inspect equipment (samples are shown on page 2 of this document).
2. Arrange for attendant person and communication (Attendant must be First Aid and CPR trained).
3. Review Emergency and Rescue Procedures provided on page 2 of this document.

PRE-ENTRY MONITORING AND SETUP

1. Setup tripod and barriers to restrict access and protect entry point.
2. Note the safe ranges for air monitoring: Oxygen between 19.5% and 23.5%; Combustible gas less than 10% LEL, Hydrogen Sulfide less than 10 ppm, Carbon Monoxide less than 35 ppm
3. Test the air at the top of the space through the cover or just above the cover. Record the results on this checklist.
4. If acceptable, open the cover. Test the air at the middle and bottom of the space. Record the results on this checklist. If the combustibility reading at the bottom is greater than at the top of the space, notify your supervisor. DO NOT ENTER THE SPACE! If the air is not within the safe ranges, ventilate, purge and retest. If the atmosphere does not improve to acceptable conditions, DO NOT ENTER THE SPACE!
5. Activate ventilation equipment.
6. Once an acceptable atmosphere is obtained, ventilate the space for **at least 10 minutes**.
7. Check the heat index of the space and verify it to be less than 97 F (www.osha.gov/SLTC/heatillness/heat_index/about.html). Install insulating materials over hot exposed surfaces.
8. Verify no new hazards are present before entering the space.
9. Verify method of communication between attendant and entrant and ability to quickly notify the Yale Central Power Plant in the event of an emergency.

ENTRY

1. Entrant must don a harness and connect to the tripod rescue hoist.
2. Continuously ventilate and monitor the space. Record the results on this permit **every 15 minutes** and perform periodic communication checks. Retest the air after breaks and lunch.

POST-ENTRY

1. Ensure all equipment is accounted for, inspected, clean, and returned to appropriate storage location(s).
2. Ensure the manhole cover is replaced
3. Note any comments, feedback and suggestions on this form ("debriefing").
4. Return this checklist to the Supervisor.

MONITORING

Instrument Make:	Model:	Serial Number:

Pre-Entry Condition Verified By (Print/Sign):

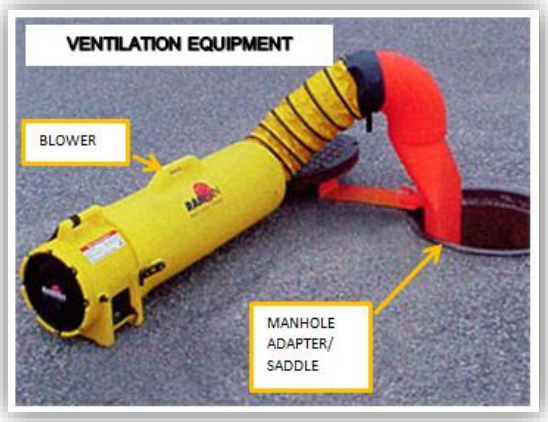
Time (every 15 minutes)	Oxygen (Safe Range: 19.5-23.5%)	Combustible Gas (Safe Range: LEL <10%)	Carbon Monoxide (Safe Range: <35ppm)	Hydrogen Sulfide (Safe Range <10 ppm)
Pre-Entry:	Top of Manhole:_____ Middle of Space:_____ Bottom of Space:____	Top of Manhole:_____ Middle of Space:_____ Bottom of Space:____	Top of Manhole:_____ Middle of Space:_____ Bottom of Space:____	Top of Manhole:_____ Middle of Space:_____ Bottom of Space:____

TIME OF ENTRY:	TIME EXITED:
DEBRIEFING NOTES:	
Supervisor's Signature:	Date:

UPON COMPLETION OF ENTRY, THE SUPERVISOR IS TO RETAIN PERMIT FOR ONE (1) YEAR.

ENTRY EQUIPMENT

- □ Calibrated and charged four gas meter
- □ Ventilation equipment and a power source for the equipment
- □ Traffic barriers and signs
- □ Manhole cover lifting tools/equipment
- □ Hazard mitigation equipment (lockout, thermal barriers, etc.)
- □ Appropriately sized and inspected fall protection harness
- □ Rescue equipment (tripod and hoisting system)
- □ Method of communication
- □ Ladder/equipment needed to enter the space



EMERGENCY AND RESCUE PROCEDURES

- Initiate self or non-entry rescue as necessary and feasible. DO NOT ENTER THE SPACE TO PERFROM A RESCUE!
- Notify CPP Control Room via radio who will then call 911 as well as Police and Security: 432-4400, 785-5555
- Indicate location and that the incident involves a Confined Space Emergency
- Coordinate balance of rescue with other emergency services.