

Safety guide for work in manholes



Introduction

Working near or in a manhole inherits potential dangers which may result in serious accidents. The common ones include falls/slips, fire or explosion, oxygen depletion, gas poisoning, heat stress, drowning, asphyxiation arising from gas, fume, vapour and entrapment by free flowing solid. Amongst which, dangers involving gases are easily overlooked or neglected, leading to serious casualties.

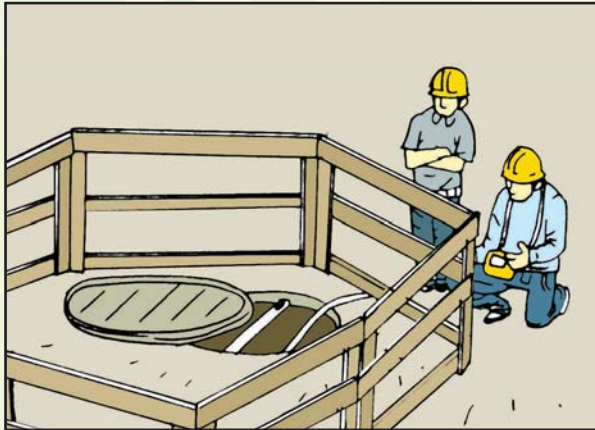
This guide aims to remind persons entering or working in a manhole to take appropriate measures, including measures for the prevention of oxygen depletion and gas poisoning. “Certified workers” (Note 1) must be familiar with the ‘Code of Practice – Safety and Health at Work in Confined Spaces’, and before entering a manhole, they must take all the necessary safety precautions to ensure safety at work.

(Note 1) Under the Factories and Industrial Undertakings (Confined Spaces) Regulation, “certified worker” means a person—

- who has attained the age of 18 years; and
- who holds a certificate issued by a person whom the Commissioner has authorized to certify workers as being competent to work in a confined space.

Things to Note before Entering a Manhole

- Enter a manhole only after the responsible person has issued a valid certificate and only within the period specified in the certificate. Before issuing such a certificate, a proprietor or a contractor shall employ a “competent person” (Note 2) to conduct a risk assessment, including the use of appropriate equipment to test the air inside the manhole. Worker should never use out-dated methods (like throwing a flame down the manhole, observing the distribution of small animals and the colour of the manhole) as a safety indicator for entering a manhole.



(Note 2) Under the Factories and Industrial Undertakings (Confined Spaces) Regulation, “competent person” means a person—

- who has attained the age of 18 years;
- who is either-
 - (i) A safety officer registered under the Factories and Industrial Undertakings (Safety Officers and Safety Supervisors) Regulations (Cap. 59 sub. leg.); or
 - (ii) A person who holds a certificate issued by a person whom the Commissioner has authorized to certify persons as being competent to prepare risk assessment reports; and
- who has at least one year’s relevant experience, after obtaining the registration or certification referred to in (i) or (ii) mentioned above in assessing risk to the safety and health of workers working in confined spaces.

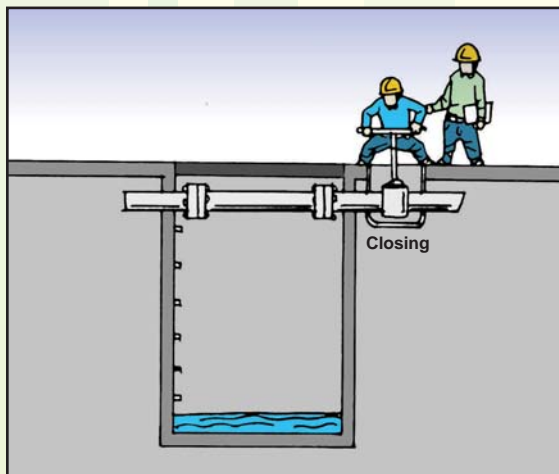
- The responsible person shall implement the safety measures recommended by the “competent person”, and maintain the effective operation of such measures in the course of work.



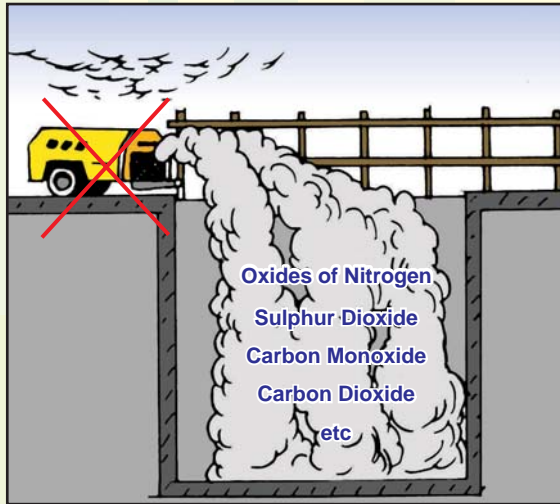
Safety measures for the prevention of gas poisoning include:

- Blank off all pipelines connected to the manhole to prevent any dangerous gas or fume from entering the manhole.

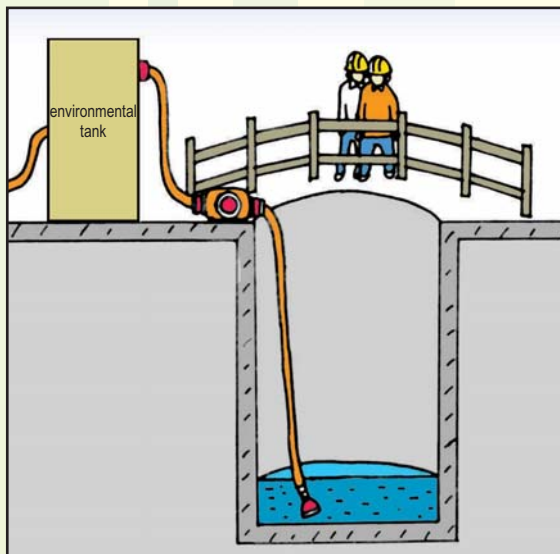
Example 1: Closing the valve;



Example 2: Removing any generator that may produce toxic gases



- Remove any sewage or sludge in the manhole beforehand to prevent any toxic or noxious gases that may have accumulated in it from being released and endangering the workers in the manhole in the course of their work.

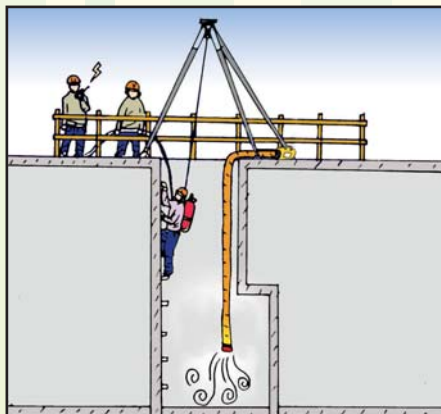


- Use a ventilating blower to supply fresh air into the manhole to ensure that the air inside is maintained safe for the workers.
- Ensure a sufficient supply of power outlets for the operation of the ventilation blower(s).
- The responsible person shall take other safety measures, such as erecting fencing, posting of warning notices, etc., to ensure the safety of relevant personnel.



Things to Note When Entering and Staying in a Manhole

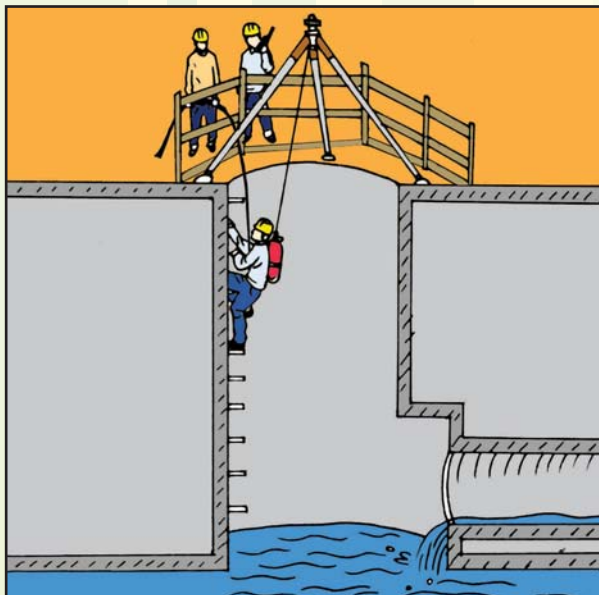
- The responsible person shall have implemented all the safety measures recommended by the “competent person” before issuing a certificate to enter a manhole.
- Before any person enters a manhole, there shall be a sufficient number of persons on standby outside, including those who are appointed to carry out a rescue operation inside the manhole and those responsible for support services outside when such an operation is necessary.



- While working in a manhole, if there are signs indicating that the safety of the workers are under threat, for example, the equipment that continuously monitors the quality of the air gives warning alarms, then evacuation of the workers from the dangerous environment shall be made according to the emergency procedure, and the “competent person” shall reassess the environment afterwards.
- Should an accident occur, inform the relevant government departments like the Fire Services Department at once for rescue. Only site personnel who have been suitably trained shall use the appropriate rescue equipment so provided to conduct the rescue operation according to the emergency rescue procedure, if possible.

Things to Note:

- Some work, like that for flow interception and drainage connections, may be carried out in manholes where the environment is ever changing and the conditions are difficult to assess. The responsible person shall ensure that workers conducting such work put on breathing apparatus of the approved type, safety harnesses and rescue ropes before entering a manhole. Workers shall also properly use such protective equipment in the course of work.



- The responsible person shall provide and inspect all equipment (like resuscitators) and personal protective equipment (like approved breathing apparatus, safety helmets, protective clothing, safety harnesses and rescue ropes). An employer shall also be responsible for providing training to ensure that the workers understand clearly how such equipment and tools are to be used.



At any time, especially when an accident has occurred, workers shall not enter a manhole without any rescue equipment and support. In case of an accident, police should be informed immediately for help and the management should be notified.

Remember: In the course of work, the management staff should keep close supervision at all times.

Useful Information

If you wish to enquire about this guide or require advice on occupational safety and health, you can contact the Occupational Safety and Health Branch of the Labour Department through:

Telephone: 2559 2297 (auto-recording after office hours)

Fax : 2915 1410

E-mail : enquiry@labour.gov.hk

Information on the services offered by the Labour Department and on major labour legislation can also be found by visiting our Homepage at <http://www.labour.gov.hk>.

Information on the services offered by the Occupational Safety and Health Council can be obtained through hotline 2739 9000.

Complaints

If you have any complaints about unsafe workplaces and practices, please call the Labour Department's occupational safety and health complaint hotline at 2542 2172.