



Work Safety Alert

Gas Poisoning in Drainage Work

1. Date of Accident : September 2014

2. Place of Accident : A building construction site

3. Summary :

Two workers conducting pipe clearing work were found collapsed inside an underground sewage pipe, resulting in one death and one casualty.

4. Work Safety Alert for Contractors/Employers :

Most gassing incidents in underground drainage work could be attributed to failure to identify the atmospheric hazards in the work environment and/or ignorance of the safety procedures/precautionary measures to be taken.

Contractors/employers undertaking underground drainage work should:

- appoint a competent person to conduct task-specific risk assessments, taking into account the nature of the work, emergency situations and rescue operation before the commencement of the work;
- avoid man-entry into the drainage as far as reasonably practicable, especially if the assessment indicates risks of serious injury, loss of consciousness or asphyxiation;
- if man-entry into the drainage cannot be avoided, formulate and implement an effective safe system of work, which should fully comply with the Factories and Industrial Undertakings (Confined Spaces) Regulation, and should include the following:
 - implementing a permit-to-work system, having all necessary safety precautions taken and certified in writing with the period during which workers may remain safely inside the drainage specified, before any workers are allowed to enter the drainage;



- conducting effective purging and thereafter air monitoring to ensure that any hazardous gases, fumes, vapours, sludge or other deposits have been removed before allowing workers to enter the drainage and work therein;
- taking effective steps to prevent ingress of any hazardous gases, fumes or vapours into the drainage;
- providing forced ventilation to remove any hazardous substances and to maintain sufficient fresh air supply while workers are at work in the drainage;
- ensuring that only certified workers are allowed to enter the drainage for work and providing them with adequate information, instruction and training;
- ensuring that workers entering the drainage use suitable personal protective equipment as appropriate, including approved breathing apparatus and safety harnesses connected to lifelines that are strong enough to enable each of them to be pulled out;
- assigning a stand-by person to station outside the drainage throughout the time of operation to maintain communication with the workers inside;
- ensuring effective communication among the workers working inside and outside the drainage;
- formulating and implementing proper emergency procedures, including provision of sufficient and suitable rescue equipment and presence of a rescue team that commensurate with the scale of the task;
- instructing the standby person not to enter the drainage even in case of emergency. The standby person should remain stationed outside



the drainage and immediately summon assistance of the rescue team and public emergency services (i.e. the Police and the Fire Services); and

- exercising effective monitoring and supervision to ensure that the above safety measures are fully implemented and strictly followed.

5. Reference :

- [Five Steps to Risk Assessment](#)¹
- [Safe Systems of Work](#)¹
- [A Brief Guide to the Factories and Industrial Undertakings \(Confined Spaces\) Regulation](#)¹
- [Code of Practice for Safety and Health at Work in Confined Spaces](#)¹
- [Prevention of Gas Poisoning in Drainage Work](#)¹
- [Breathing Apparatus approved by the Commissioner for Labour for use in confined spaces](#)¹

DISCLAIMER

This Work Safety Alert (“the Alert”) is issued at the earliest possible opportunity after a serious accident with a view to drawing the attention of interested parties to the general safety precautionary measures necessary to protect people engaging in similar work activities. The material contained in the Alert constitutes general guidance only. It does not reduce, limit, or replace, any legal obligations upon any person to comply with any statutory duties under relevant legislation. Users such as Managers and Supervisors should make their own evaluation of the information contained in the Alert to determine if it can be applied to their own situations and practices. The Labour Department does NOT accept any responsibilities for any loss or damage resulting from the use of or failure to use of the information on the Alert.

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