



Work Safety Alert Drowning in Hand-dug Tunnel

1. **Date of Accident :** July 2017
2. **Place of Accident :** A hand-dug tunnel for underground cable laying
3. **Summary :**

Three workers were suspected to have been drowned by a sudden rush of water into the tunnel.

4. **Work Safety Alert for Contractors/Employers :**

Workers engaged in work inside underground tunnels or pipes may be exposed to various specified risks related to confined spaces such as in-rush of mud or water and atmospheric hazards. To ensure the safety of workers/employees undertaking work inside underground sites of confined space nature, the contractors/ employer should:

- appoint a competent person to conduct task-specific risk assessments to identify all potential hazards before commencement of work, taking into account the nature of the work, restrictive condition of the place of work, locations of nearby facilities, emergency situations and rescue procedures;
- avoid to allow working underground as far as reasonably practicable where risks of loss of consciousness or asphyxiation of any person at work arising from gas, fume, vapour or the lack of oxygen, or drowning of any person at work arising from an increase in the level of liquid are identified;
- if man-entry into the underground tunnel or pipe cannot be avoided, provide and maintain a safe system of work which should include, but are not limited to, the following:



- ensuring safe access to and egress from the place of work is provided and maintained, and in case manholes or openings are adopted as access and egress, considering any possible difficulties for access and rescue in case of emergency;
- implementing a “Permit-to-work” system to ensure all necessary safety precautions are taken before certifying safe entry in writing, and clearly specifying a period during which workers may remain safely inside the confined space;
- ensuring the records of all risk assessment reports and relevant certificates are properly kept and maintained;
- using the “Permit-to-work” system for double checking the fulfilment of all safety measures recommended in risk assessment report before commencement of work;
- taking effective steps to prevent ingress of hazardous gas, vapour, dust or fume and in-rush of free flowing solid or liquid into the confined space, with particular attention be paid to any possible ingress, in-rush, spillage or leakage of such substances from the surrounding;
- ensuring that only certified workers with suitable experience are allowed to enter the confined space for work and providing them with adequate information and instruction;
- ensuring that workers entering underground pipes use suitable personal protective equipment as appropriate, including approved breathing apparatus and safety harnesses connected to lifelines to enable each of them to be pulled out by a standby person outside the underground pipe who are strong enough to do so; and where such measure is recommended in the relevant risk assessment report, ensuring workers entering underground tunnels use the same;



- assigning a stand-by person to station outside the underground tunnel or pipe throughout the time of operation to maintain communication with the workers inside;
 - ensuring effective communication among the workers working inside and outside the underground tunnel or pipe;
 - formulating and implementing proper emergency procedures, including provision of sufficient and suitable rescue equipment and presence of a rescue team which should commensurate with the scale of the task;
 - instructing the standby person not to enter the underground pipe even in case of emergency, who should remain stationed outside the underground tunnel or pipe and summon assistance of the rescue team and public emergency services (i.e. the Police and the Fire Services);
- provide all workers/ employees concerned with necessary safety information, instruction and training, and ensuring that they are familiar with the safe work procedures and safety measures; and
 - establish and implement an effective monitoring and control system to ensure all safety measures are strictly followed.

5. Reference :

- [Safe Systems of Work](#)¹
- [Five Steps to Risk Assessment](#)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.

Note: The material contained in the Alert is not exhaustive, and will be supplemented/ adjusted where necessary if more relevant information comes to light.