Safety Underground



Safety Talk

What's at Stake?

Increasingly, utilities are installing much of their services underground. Underground utilities are not as prone to weather interrupting service. There is less risk of damage to the lines from machinery or other business operations such as farming. Underground services also improve the general appearance of the communities served by the utilities.

What's the Danger?

Working underground, utility workers risk exposure to dangerous excavations and risky excavation practices and working in vaults or manholes that are considered confined spaces.

Atmospheric conditions that may occur underground include engulfment, exposure to toxic gases, the presence of explosive or flammable gases, and low oxygen levels.

Utility workers entering and exiting the manhole or vault are also at risk of injury from passing machinery, people and vehicles, if there is insufficient protection around the manhole.

How to Protect Yourself

7 easy ways to keep yourself safe:

1. Be prepared

- Attend workplace briefings. The minimum is before starting work on the site, the ideal is daily. The briefing should cover:
    - Hazards associated with the job.
    - Lockout/tagout to control hazardous energy sources.
    - Special precautions and work procedures.
    - Personal protective equipment requirements.
- Be trained on manhole and vault evacuation and rescue and emergency procedures.
    - Remember – DO NOT enter a confined space or excavation unless you are trained to do so. This includes entry for rescue.
- Only use tools and equipment suitable for excavation and confined space work.

2. Protect the zone

- Separate and protect the manhole and vault entry work area.
- Work closely with traffic management teams, if available.
- Ensure clear signage for pedestrian and vehicle traffic.
- Check that signage allows time for traffic to adjust, and that directional arrow boards, cones, barrels and barricades are correctly placed.
- Plan construction activities at times of the day when traffic may be reduced, if possible.

3. Testing, testing, testing

- Before you go into the manhole or vault, check that atmospheric testing has been done by a qualified person.
- Atmospheric testing must be done near the surface of the opening, midway into the enclosure and near the bottom of the enclosure.
- Make sure there is continuous monitoring in place while you are working underground.
- Documentation of testing should be available on the entry permit.

4. Get out if conditions change

- If the confined space attendant says, “Get out!!” …get out and stay out until you are told it is safe.
- Know how to get out. Check the location of a portable ladder or permanent rungs in the wall.
- If a retrieval device is available:
    - Wear your safety harness connected to the retrieval device.
    - Check someone is available who can use the retrieval device correctly.

5. Just breathe

- Fresh air ventilation should be available to ensure that the proper level of oxygen is present to support life and prevent heat exhaustion and worker fatigue.
- Use of a respirator is required in low oxygen and immediately dangerous to life and health (IDLH) atmospheres.

6. Be aware of fire hazards

- If the space contains energized cable an arc flash in the space may occur.
- Burning insulation creates toxic fumes; so, does burning many other materials.

7. You are in

- When you enter the manhole or vault, look around to check for:
    - structural changes due to weather or heavy traffic vibration;
    - low suspended pipe, cable trays and equipment;
    - any pressurized or energized equipment; and
    - water due to rain, sewage seepage, etc.

Final Word

More and more utility work is being carried out through manholes and in underground vaults. This has many benefits for maintaining the utility service but does carry some, often unique, risks to utility workers.