

Working safely in...

...confined spaces

Reproduced with the kind permission
of Scriptographic Publications

Honeywell

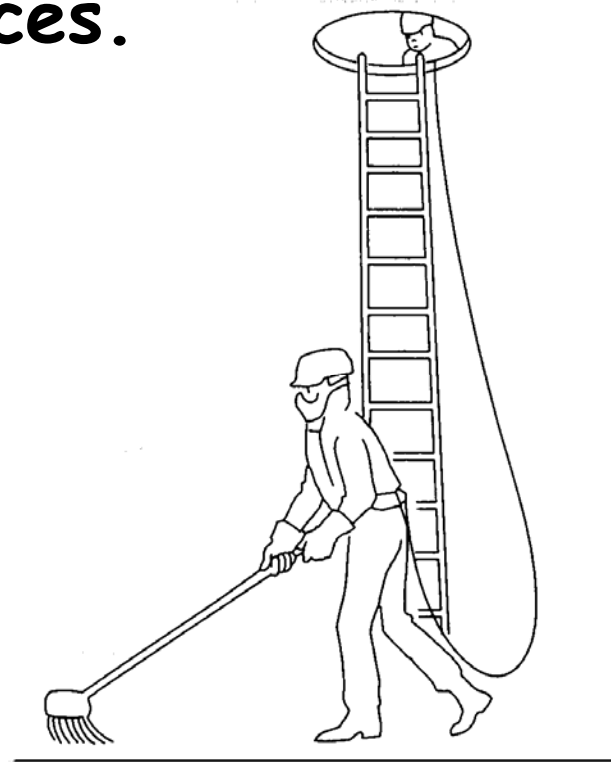


What's a confined space?

It's a partly or fully enclosed area where there is a risk from hazardous conditions or substances.

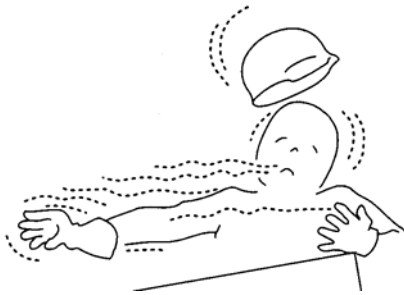
These include...

- Heat
- Gases
- Fire
- Explosions



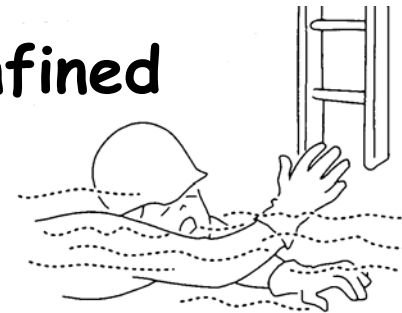
Confined spaces are dangerous

Poor ventilation results in a lack of oxygen or poisons being built up in the air we need to breath



Many toxic substances are odourless and colourless. Special equipment is needed for detection

Escape or rescue from a confined space can be very difficult



Why worry?

Every year hundreds of workers are injured or killed in confined spaces. Accidents can happen quickly and silently

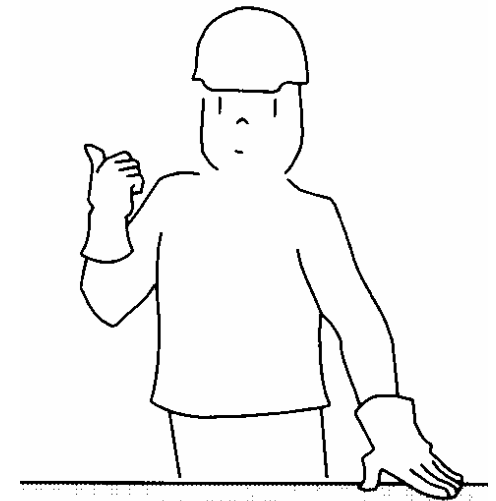
Most accidents are caused by ignorance or overconfidence

ACCIDENTS can be prevented...

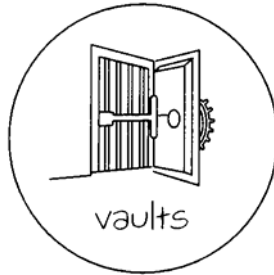
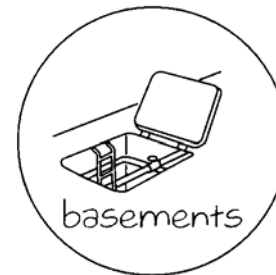
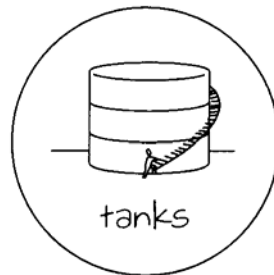
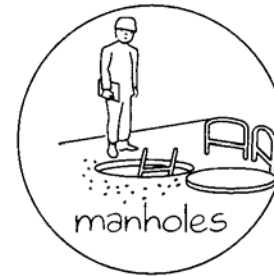
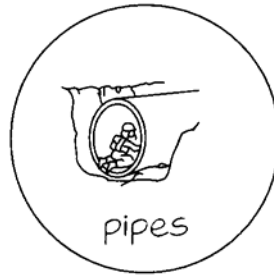
Know the hazards of the job to be done

Learn how to detect and deal with those hazards

Follow established safety procedures



Types of confined spaces



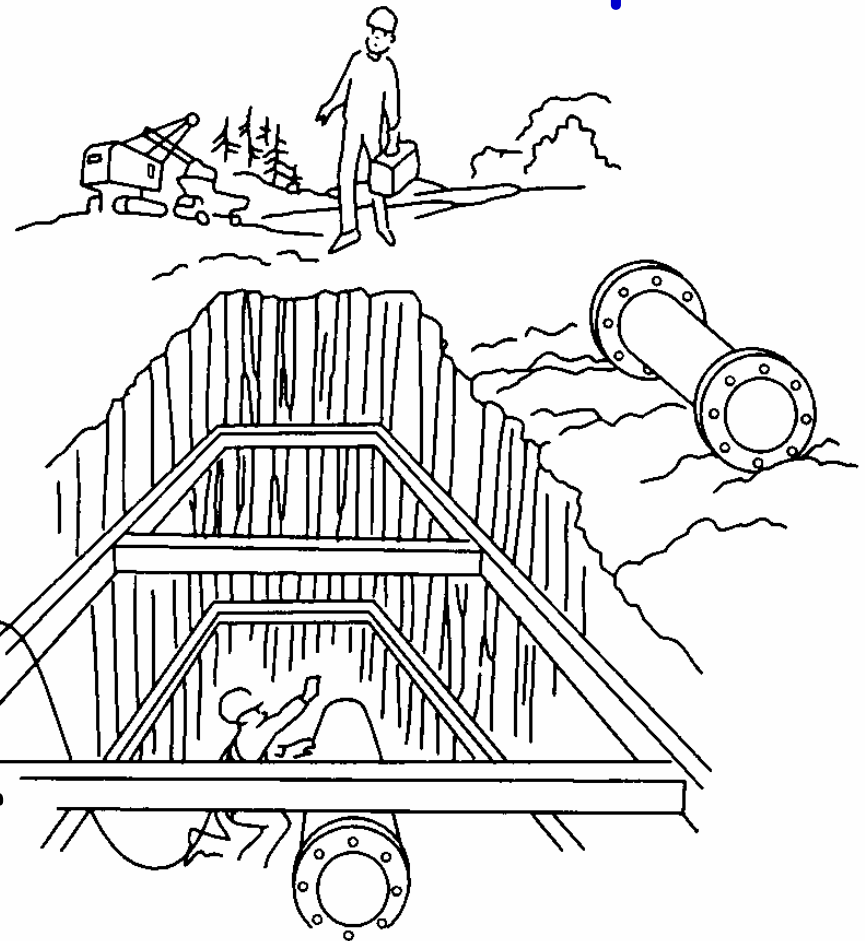
Underground areas and enclosed spaces are the most recognisable confined spaces

But...

...any place can become a confined space!

An open ditch or vault becomes a confined space if air circulation inside is poor and gas that's heavier than air accumulates at the bottom

A structure of irregular shape becomes a confined space if pockets of gas or vapour accumulate where air doesn't circulate



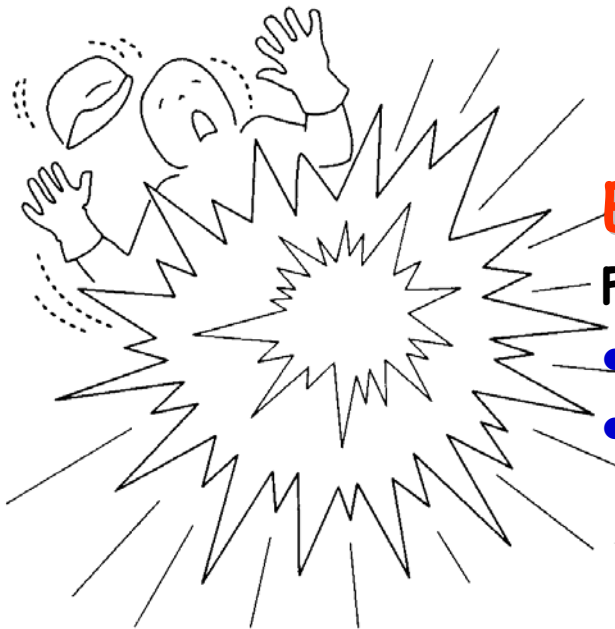
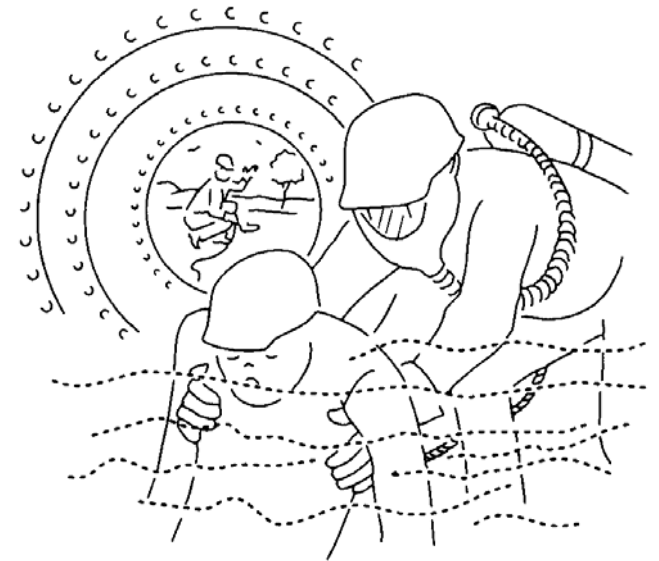
Honeywell

What are the main hazards?

Toxic gases or vapours

These can poison or suffocate workers

- Rotting vegetation or waste
- Previous operations
- Work on the day e.g. cleaning materials



Explosion or fire

Flammable gases can burn or explode

- Rotting vegetation or previous operations
- Work on the day e.g. oxy-propane cutting may create excess oxygen which increases the risk of spontaneous combustion

Honeywell

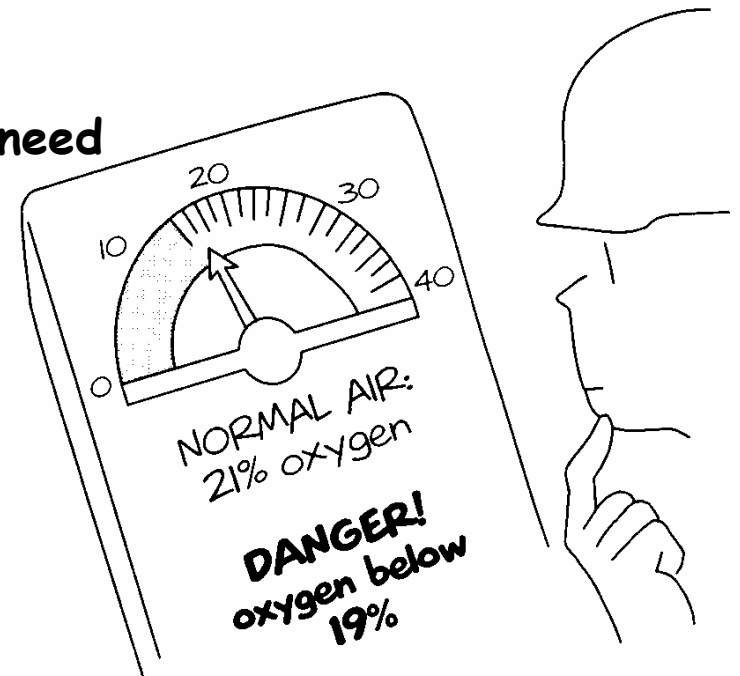
What are the main hazards?

Oxygen deficiency

We breathe air but it's the oxygen we need

Oxygen can be consumed in many ways

- Oxidation due to rusting
- Growth of bacteria or fire
- Displacement by another gas



Hazards may occur singly or together

Lack of communication with workers outside the confined space increases the danger

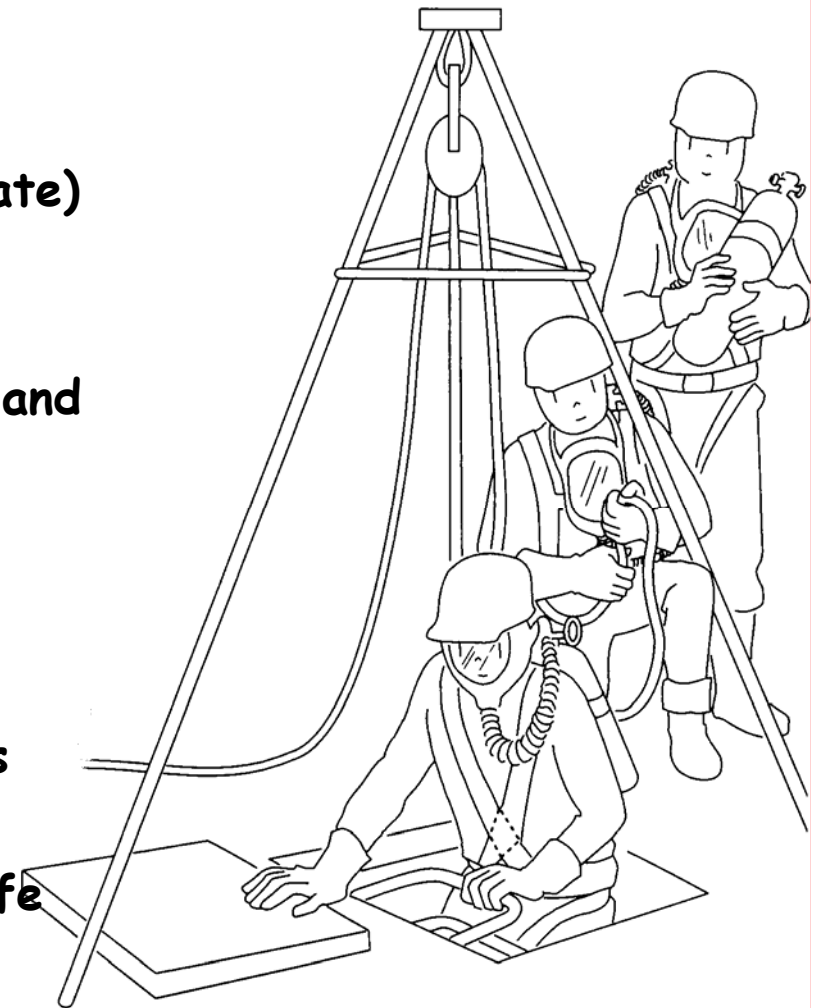
Typical safety equipment

Always use...

- Safety lines and harnesses
- Lifting equipment (where appropriate)
- Emergency air (escape set)
- Protective clothing
- Helmet, goggles, earplugs, gloves and safety boots, torch
- **Personal multigas monitor**

Use breathing apparatus...

- In an emergency
- Where there are unknown hazards
- Areas that can't be tested
- Anywhere that is not certified safe



Honeywell

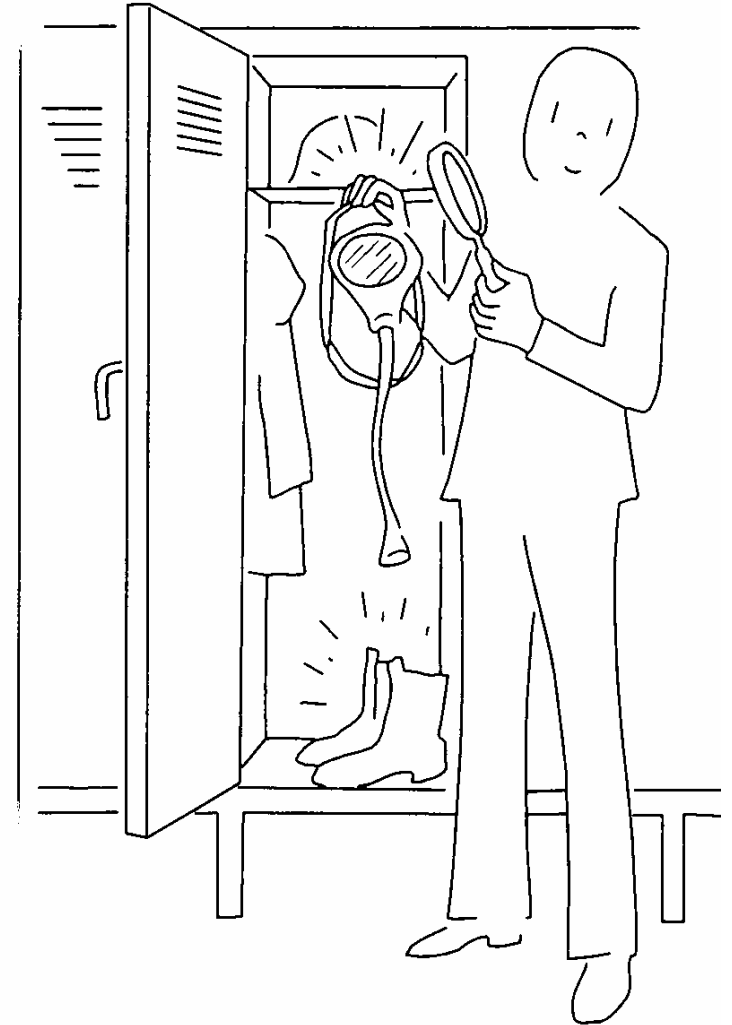
Maintain Safety Equipment

Inspect equipment thoroughly before use

Multigas monitors should be tested **BEFORE** each use and re-calibrated if necessary

Report any defects to a Supervisor

Never wear or use defective equipment



Honeywell

Careful planning is essential

Review company guidelines, rules and regulations

- What are the hazards?
- What safety equipment is needed?
- What do you do in an emergency?

Get a permit-to-work from a Supervisor

- Record of the work being done
- What precautions are to be taken?
- Authorises entry into the confined space
- **Permits are there to protect YOU and must be obtained**
- Before work starts display the permit to work on site



Assemble the team to do the work

- Never enter a confined space without an Attendant standing by
- If required, have a Rescuer ready to assist
- One person **MUST** remain outside at all times (the Attendant)

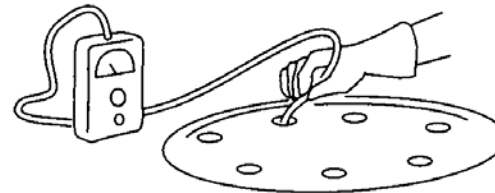
Before entering confined spaces

Block sources of danger and withdraw the area from service. Record steps taken on the permit-to-work



ALWAYS test the atmosphere before entering a confined space

- Use appropriate testing devices
- Ensure they are operational
- Insert probe through vent (if possible) then open and test more thoroughly (from outside)



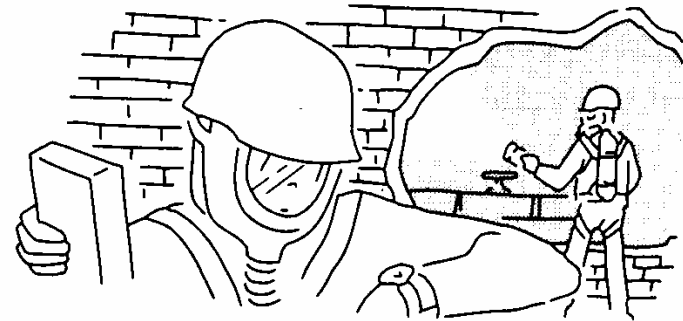
- Test all levels and areas
- If gases or vapours detected ventilate and re-test

Honeywell

While in the confined space

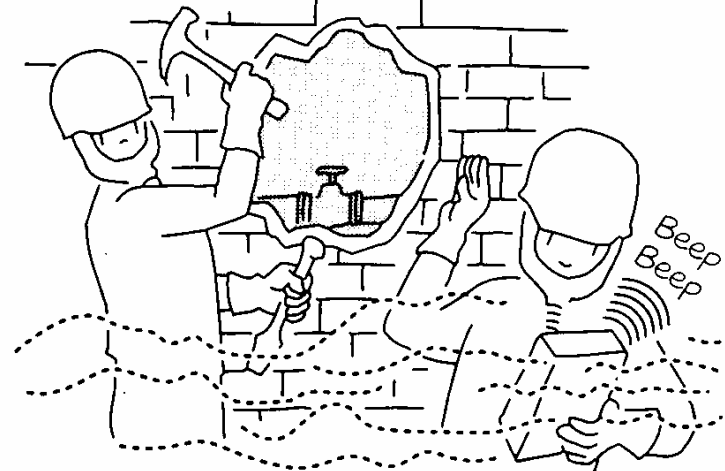
Follow recommended procedures

- Wear and use protective clothing and equipment
- **MAINTAIN** contact with the Attendant



Test the working atmosphere continuously

- Test upon entering (having completed pre-entry checks)
- Toxic or flammable substances may be disturbed due to work
- Test **BEFORE** every new entry e.g. After lunch breaks



Honeywell

In an emergency

Immediate action can save lives when an accident occurs

Call for help

- Do not enter confined space without back-up

Start ventilation equipment

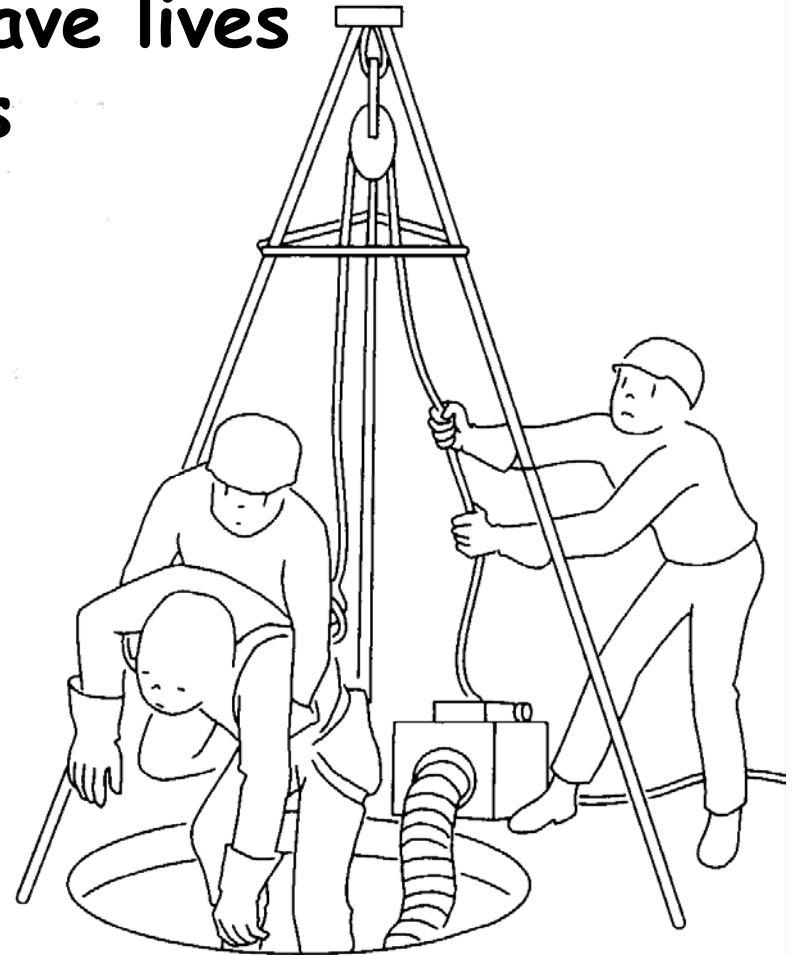
Remove the casualty

- Without entering the confined space if possible

Provide first aid

Get medical attention

Isolate the area



Honeywell



Two Out of Three Deaths...

...Occur Because the Rescuer

- Did not maintain contact with the entrant
- Did not carry out pre-entry check
- Did not know what gas hazards were present prior to attempting rescue
- Suffered the same fate as the entrant!

How much do you remember?

True False

- A confined space always poses some risks _____
- A permit-to-work is essential for working in a confined space _____
- A multigas monitor is an essential piece of safety equipment for working in confined spaces _____
- Poor air circulation can turn any place into a confined space _____
- Safety equipment should be checked before each use _____
- A lack of oxygen is the only hazard found in a confined space _____
- It is essential to have at least one Attendant outside the confined space you are working in _____

Honeywell