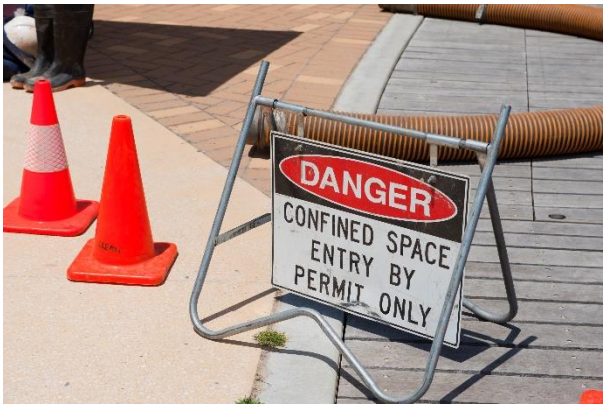
Pacific Maritime
LAWYERS & CONSULTANTS

The Dangers of Confined Spaces



On Saturday 13 January 2018, two brothers died as a result of air fume accumulation inside a haulage tank last used to transport a sugar cane by-product known as superflow. It is presumed that the two men were cleaning the tank, and due to the confined space, they were overcome by the fumes. The tank belonged to the family business and the men lived and worked in a small and tight-knit community. This raises the importance of education in relation to the dangers, not only with obvious risks, such as oil and gas tankers, but **all** confined spaces.

The Dangers

The dangers of Confined spaces are not new. In the 17th century, aboard *HMS Lennox*, a ship's officer fell into a confined space and those who attempted rescue were themselves overcome by fumes and became victims.

More recently, a short internet search reveals numerous news articles recording confined spaces tragedies even within the last couple of years. There is the unfortunate incident of the two brothers in Sarina, two engineers and an engine room fitter who died while repairing a storm valve, three farmers who died in a water tank, two crewmen who died after entering a ship's hold containing timber. Unfortunately, the list of incidents is extensive and seems to be ongoing.

The particular dangers of confined spaces are that the danger is unseen. Methane, carbon monoxide, oxygen deficiency, vapours from solvents, hydrogen sulphide gas; these examples are all invisible, hazardous, and potentially lethal gases that create dangerous atmospheres. This is dangerous for the victim, and dangerous for any rescue attempts. The first instinct is to help the person, and in the absence of a visible threat, the rescuer often enters the same dangerous situation and also becomes a victim.

Identifying a confined space

Confined spaces can be very dangerous, and in some cases they might be a known hazard, but in others they appear completely innocuous.
Legally, a confined space is defined as:

Any enclosed or partially enclosed space that;

a) Is not designed or intended primarily to be occupied by a person; and
b) Is, or is designed or intended to be, at normal atmospheric pressure while any person is in the space; and
c) Is or is likely to be a risk to health and safety from
    i) An atmosphere that does not have a safe oxygen level; or
    ii) Contaminants, including airborne gases, vapours and dusts, that may cause injury from fire or explosion; or
    iii) Harmful concentrations of any airborne contaminants; or
    iv) Engulfment;

But does not include a mine shaft or workings of a mine.[1]

This legal definition is designed to protect, but it is possibly the furthest thought from the minds of each of the people who became victims of confined spaces. This is the importance of safety education, not only in industry, but across the community.

Common examples of confined spaces are; vats, tanks, pipes, ducts, chimneys, silos, containers, pressure vessels, underground sewers, shafts, trenches, and tunnels. These spaces are not uncommon, and not confined only to industry. The legal obligations of industry are important, however education is imperative because the community who are not bound by the codes can still benefit from their guidance.

Managing the Risks

Numerous legislative instruments require that regard is had to the health and safety of workers.[2] The *Work Health and Safety Regulation 2011* (Qld) ("the Regulation") Part 4.3 is dedicated to confined spaces and provides lengthy guidance on how to manage the risks. While the Regulation speaks to the industry and person conducting a business or undertaking, the provisions are useful guidance and food for thought for the community also.

The Regulation places the duty to reduce risks on all persons conducting a business or undertaking, designers, manufacturers, suppliers of plant or structures, officers and workers.

- Designers, manufacturers, importers and suppliers must, so far as is reasonably practicable, eliminate or minimise the need for any person to enter a confined space and the risk of a person inadvertently entering the space.
- Persons conducting a business or undertaking must manage all risk to health and safety of confined spaces in their workplace, including the risk of a person inadvertently entering a confined space.
- A written risk assessment must be completed and regularly reviewed by a competent person.
- Emergency procedures must be established and practised relating to first aid and rescue for the confined space, it must also be ensured that the confined space is fully accessible for rescue procedures.
- Relevant workers must be provided with information, training and instructions in relation to the hazards of working in confined spaces, including the control measures, the personal protective equipment, the use of permits and emergency procedures.

The Regulation requires the implementation of certain strategies for managing working in confined spaces. The same strategies are equally useful for the community. The Regulation requires that:

- A permit system is implemented. The permit will: relate only to the work immediately required in the confined space; describe the risk management measures in place; name the persons permitted to enter the space; and record when work is completed and that all workers have left the confined space.

[1] *Work Health and Safety Regulation 2011* (Qld) Schedule 19.

[2] *Occupational Health and Safety (Maritime Industry) Act 1993*; *Transport Operations (Marine Safety) Act 1994* Part 4; *Queensland Workplace Health and Safety Act 2011* Part 3; and *Marine Safety (Domestic Commercial Vessel) National Law Act 2012* Part 3.

- Clear and prominent signs must be erected to identify the confined space and inform workers that entry is only allowed with a permit.
- While the person is in the confined space there must be a system for continuous communication with the worker inside, and monitoring of conditions within the confined space by a person who is in the nearby vicinity, or observing the work being carrier out.
- There are additional specific control provisions for;
    - Introduction of any substance or condition to the space by a connected service, or the activation or energising of any services connected to the space,
    - Purging or ventilation of the atmosphere of the space,
    - Ensuring that the concentration of any flammable gas or vapour in the space remains below 5% of its LEL,
    - Ensure that an ignition source is not introduced into the confined space.

Maritime Industry

Specific to the maritime industry, *Marine Order 21 (Safety and emergency arrangements) 2016* provides obligations for vessel owners to ensure the safety of their crew against atmospheric changes. Mariner Order 21 requires vessel owners to supply atmosphere sampling and measuring equipment on board oil tankers, chemical tankers, gas carriers, vessels carrying cargo that is likely to deplete oxygen, give off dangerous gases, or any vessel in which seafarers may be required to enter a confined space.

Conclusion

The laws relating to safety in the work place are extensive, and it is not the laws that are at fault when confined spaces are involved. The worst offender is a basic lack of awareness. Industry are legally obliged to be aware, to provide training, implement plans and assessments, and yet mistakes are still made. The community are under no such legal requirement, and so education is more important than ever to raise awareness of practices that can prevent further deaths.

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