

NATURAL GAS AWARENESS



WHAT IS NATURAL GAS?

- Approximately 95 per cent methane
- Safe, clean and efficient energy source
- Used in residential, commercial, institutional and industrial applications
- Delivered by a large network of underground pipe

PROPERTIES

Simplest hydrocarbon (largely methane).

Odourless, colourless, non-corrosive and non-toxic.

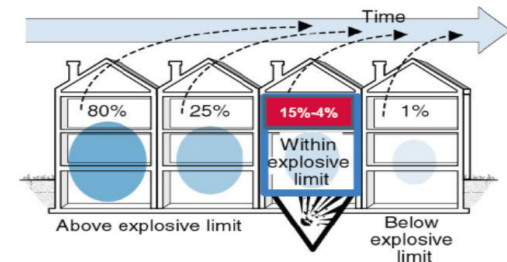
Safety features:

- Lighter than air - gas release/leaks dissipate quickly.
- Mercaptan odourant added to aid in detection ("rotten egg" smell).
- Not easily ignited - narrow flammable range.

Flammability:

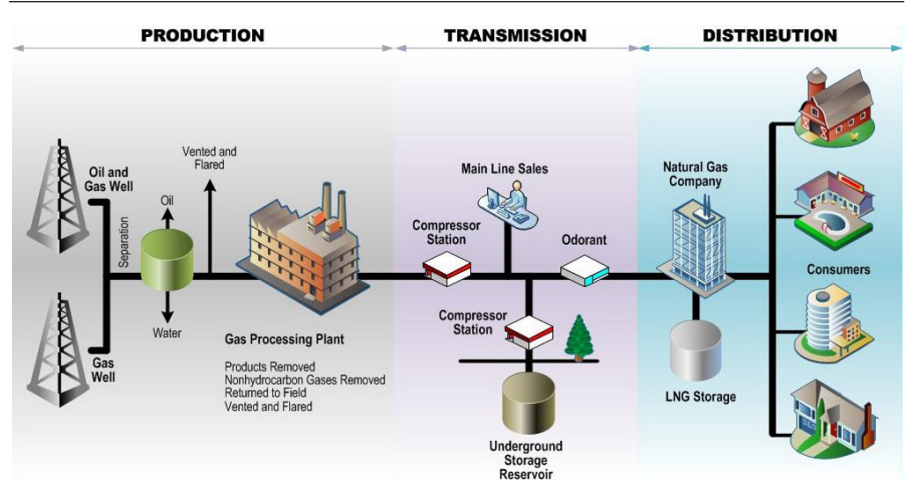
- 4 to 15 per cent gas in air.

Note: When ventilating a structure with a gas concentration above the explosive limit (15 per cent), the concentration will travel back through the explosive range before dissipating.



Cross Bore: Occurs when polyethylene plastic piping is inadvertently installed through or damages another pre-existing utility (e.g. drain). Any leak from the gas pipe will easily travel along the utility conduit and enter nearby structures.

WELLHEAD TO BURNER TIP



NATURAL GAS MIGRATION

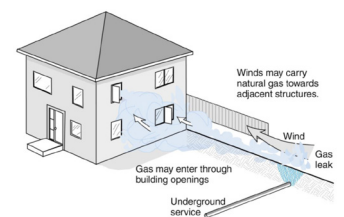
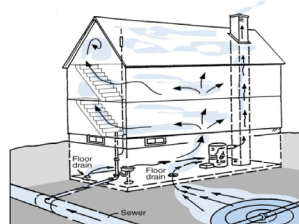
Escaping natural gas rises upward and can migrate.

OUTDOORS

- Follows path of least resistance (e.g. drains, sewers, utility conduits).
- Spread influenced by surface cover and climate (e.g. wind direction).
- Can travel a considerable distance from the leak source.

INDOORS

- May enter building from outside leak.
- Follows path of least resistance (e.g. stairwells, vents, open windows).
- Tends to collect in ceiling areas, top of stairwells and top floors.
- Other sources: indoor service lines to appliances and the gas appliance itself.



NATURAL GAS DISTRIBUTION SYSTEMS

Transmission pipelines carry gas at a high pressure and the gas will likely be unodourized.

Gas leaves transmission system and enters distribution system. This is most often the point where odourant is added.

Gate stations and district regulator stations reduce pressure for gas to be used in distribution systems.

Distribution mains deliver gas via service lines to customers.

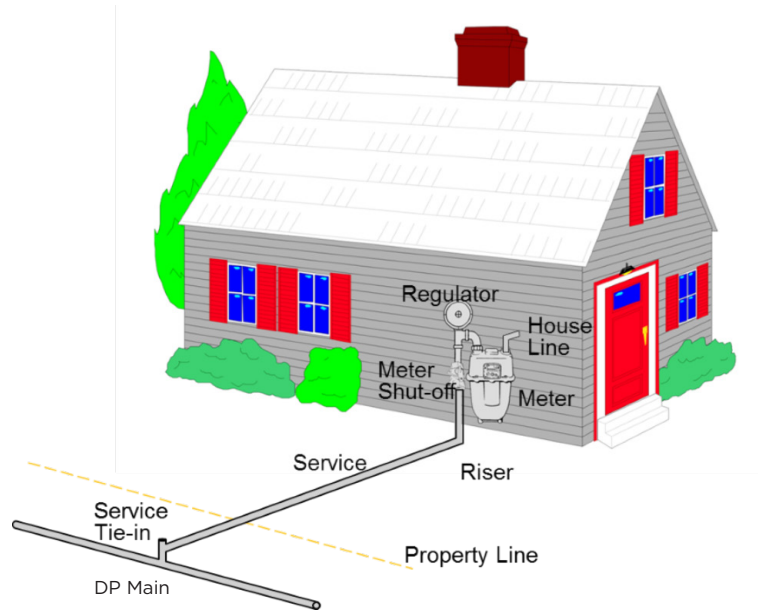
Regulators maintain constant pressure levels of gas flowing in the system:

- Regulators on meter sets (residential, commercial and industrial).
- Gate stations.
- District stations.
- Farm and intermediate pressure taps.

Vertical subdivisions:

- Multiple occupancy complex.
- Meters may be located in meter closets, in each unit, or on every floor.
- Gas is piped to meters located inside the building (e.g. meter closet).

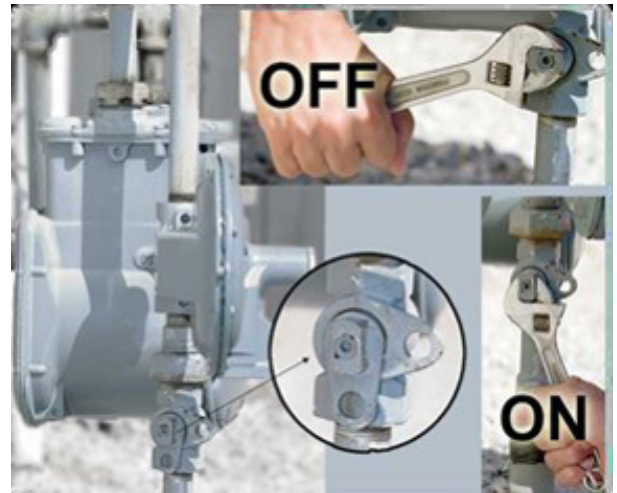
Gas is supplied at different pressures to different buildings (e.g. residential, commercial and industrial).



Service lines deliver gas from a distribution pressure main to residential customers through the meter set.



Note: Firefighters may shut off the gas supply at the meter set (if necessary and accessible) and if they have been trained in the procedure. Only gas utility personnel can turn a meter set shut off valve back on and only gas utility personnel can access underground valves (which exist to turn off gas feeds from a safe distance).



Turn valve a quarter turn to turn off. Only gas utility personnel may turn a valve back on.

DAMAGED PIPE

- Due to construction/excavation (severed service lines, cross bore, etc.).
- Do not approach or handle any exposed natural gas pipe.
- Never enter a gas envelope - the flammable atmosphere where there is a risk the atmosphere surrounding the worker may reach or exceed 10 per cent of the LEL (lower explosive limit).

