

## **NATURAL / PROPANE GAS EMERGENCIES**

Fire department units may encounter natural gas or propane gas in a variety of situations and incident types, each gas presents a different set of hazards and problems. The following guidelines present an approach which will be applicable in the majority of situations, but do not replace good judgment and experience in dealing with any particular incident. These guidelines should be used whenever situations are encountered that do not clearly indicate that a different approach is required to more safely resolve the hazard.

Natural gas is much lighter than air and will usually dissipate rapidly in the outside environment..

- Inside buildings, however, it tends to pocket, particularly in attics and dead air spaces. The flammable limits are approximately 4% to 15% in air. Natural gas itself is nontoxic, however, it displaces oxygen and can result in asphyxiation if in a confined space
- Burning natural gas should not normally be extinguished, since this would change the situation from a visible to invisible hazard with explosive potential. Fires should be controlled by stopping the flow.

Propane is much heavier than air and expands 250 times when released from a tank, it tends to sink into low areas and is slow to dissipate.

- Inside buildings, however it tends to pocket in basements and crawl spaces under mobile homes. Propane is known to follow along pipelines into structures even when the leak is outside. The flammable limits are approximately in air
- Burning propane gas should not normally be extinguished, since this would change the situation from a visible to invisible hazard with explosive potential. Fires should be controlled by stopping the flow

### **Incidents at Which an Explosion Has Occurred**

Units arriving at the scene of a structural explosion must consider natural gas or propane gas as a possible cause.

1. Until it can be determined that the area is safe from the danger of further explosions, evacuate all civilians and keep the number of fire department and/or other emergency personnel (i.e., gas company personnel) in the area, to the minimum number necessary to stabilize the situation.
2. Do not rely on gas odor. Use combustible gas indicators to check all suspected areas.
3. If a gas concentration is encountered inside, adjacent to, or underneath a building, secure all possible sources of ignition in the affected area. Cut electricity from outside the affected area to avoid arcing. Ventilate buildings where gas is found with explosion proof equipment only.
4. Command shall provide for effective interaction between gas company personnel and the fire department. Gas company personnel are responsible for locating and eliminating leaks in the gas system. As industry specialists, they can provide Command with valuable assistance in the effective handling of these

incidents. In most cases, a company officer with a portable radio will be required to supervise during on-site operations.

5. Command must ensure the safety and stability of the structure. If further collapse is possible, the Trench Rescue Team/Heavy Rescue Team should be called to provide shoring, cribbing or other means of stabilizing the structure.

### **Incidents with a Reported Gas Leak – No Fire or Explosion**

Calls for "odor of gas," "gas leak," "broken gas line" and similar situations may range from minor to potentially major incidents. All of these should be approached as potentially dangerous situations.

Gas company personnel shall be responsible for locating and eliminating leak sources. Gas company personnel shall obtain a sufficient number of gas concentration readings, using their combustible gas indicators for Command to evaluate the hazard and take appropriate action.

In all cases, fire department units shall take whatever actions are necessary to provide for life and property safety.

A minimum number of personnel should be allowed to enter the area to size-up the situation while any additional units stage in a location out of the potentially dangerous zone.

- Evacuate any civilians in the area of escaping gas.
- Attempt to locate the source of the gas and any shutoff devices available.
- Gas leak situations within a building where the source of the leak is unknown or uncontrolled, the gas supply shall be shut off at the meter.
- Command shall ensure the meter is red-tagged and locked off until repairs are completed. This is most easily accomplished with the cooperation of the gas supplier at the scene.
- If there is any indication of gas accumulating within a building, evacuate civilians from the structure and control ignition sources.
- Shut off electrical power from an outside breaker. Ventilate using explosion proof blowers to pressurize if necessary.
- If gas company personnel must excavate to shut off a leak, provide stand-by protection with a charged 1-3/4 -inch line and two fire fighters in full protective equipment and SCBA.

### **PERSONNEL SAFETY**

All personnel working in the vicinity of a known or suspected gas leak shall wear full protective clothing with SCBA. Personnel working in a suspected ignitable atmosphere (i.e., attempting to shut off a gas line) shall use SCBA and shall be covered by a manned protective hoseline. The number of exposed personnel will be kept to an absolute minimum at all times. A Limited Access Zone shall be established and maintained around any suspected gas leak and "fire when necessary."