

	<b>Terryville Fire Department Best Practices</b>	
	<u>Subject</u> <b>Natural &amp; LP Gas Incidents</b>	<b>BP# 3-10</b>
	<u>Authority</u> <b>Chief of Department</b>	Initiated 9/1/2016  Revised

**A. PURPOSE**

1. These best practices have been established to ensure the proper response and safety of our members when dispatched to natural or liquefied petroleum (LP) gas emergencies.

**B. GENERAL GUIDELINES / CONSIDERATIONS**

1. All members shall comply with all safety related best practices.
2. Reflective safety vests should only be worn by support personnel (traffic, EMS, etc.) and not by personnel conducting fire suppression activities.

Natural Gas Considerations

- 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 of natural gas are approximately 4% to 15% in air.
- Natural gas itself is nontoxic, however, it displaces oxygen and can result in asphyxiation in confined spaces.

Liquid Petroleum Gas Considerations

- LP gas vapors are gasses at normal room temperature and atmospheric pressure which liquefy under moderate pressure, readily vaporizing upon release if this pressure.
- The potential fire hazard of LP gas vapors is comparable to that of natural gas except that LP gas vapors are heavier than air.
- The flammable limits of LP gas are approximately 2% to 9% in air.
- Under most conditions, burning LP gas should not be extinguished.

3. Flammable gas ranges can only be determined by a combustible gas instrument such as the

multi-gas meters carried on our apparatus.

4. Fires should be controlled by stopping the flow of gas.

## **B. OPERATIONAL PROCEDURES**

### **1. Incidents at which an explosion has occurred**

Units arriving at the scene of a structural explosion must consider natural gas as a possible cause. Explosions have occurred in structures which were not served by natural gas. Underground leaks may permit gas to travel considerable distances before entering a structure through the foundation, around pipes or through void spaces. In these situations, the cause of the explosion may be difficult to determine.

- a. 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 or other emergency personnel in the area, limited to the minimum amount necessary to control the situation.
- b. Do not rely on gas odor. Use multi-gas meters to check all suspected areas.
- c. Check areas systematically using multi-gas meters. Start metering outside the area of the explosion and move into the area until readings indicate detectable concentration. Map the readings for the affected area.
- d. If a gas concentration is encountered inside, adjacent to, or underneath any building, secure all possible sources of ignition in the affected area. Cut electricity from outside of the area to avoid arcing. Ventilate buildings where gas is found with intrinsically safe equipment only.
- e. The use of ground probes is essential to evaluate potential underground leaks. When gas personnel are on the scene, ground probe readings and locations must be coordinated. Time, location, and concentration should be recorded for each probe. Subsequent readings should be taken from each hole when possible.
- f. The Incident Commander (IC) should provide for effective interaction with 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 the IC with valuable assistance in the effective handling of these incidents.
- g. The IC must ensure the safety and stability of the structure. If further collapse is possible, the Brookhaven Technical Rescue Team should be requested to provide shoring, cribbing or other means of stabilizing the structure.

### **2. Incidents involving a reported gas leak or odor**

Calls for odors of gas, gas leaks, and other similar situations may range from minor to potentially major incidents. All of these should be approached as potentially dangerous situations.

When gas company personnel are on the scene of an incident, it shall be the best practice for the IC or first arriving officer to provide effective communication between agencies. Gas company personnel shall be responsible for locating and eliminating leak sources. Gas company and fire department personnel should obtain a sufficient number of gas concentration readings, using their multi-gas meters for the IC to evaluate the hazard and take appropriate action.

In all cases, Terryville Fire Department units shall take whatever actions necessary to provide for live and property safety

- a. Evacuate any civilians in the area of escaping gas.
- b. Attempt to locate the source of the gas and any shutoff devices available.
- c. Gas leaks situations within a building where the source of the leak is unknown or uncontrolled, the gas supply shall be shut off at the meter. The IC shall ensure the meter is tagged or locked-off until repairs are completed. This is most easily accomplished with the cooperation of the gas company personnel on scene.
- d. If there is any indication of gas accumulating within a building, evacuate civilians from the structure and control ignition sources. Check for explosive concentrations with a multi-gas meter if there is any suspicion of accumulation within the structure. Shut off electrical power from an outside breaker. Ventilate using intrinsically safe equipment only.
- e. If gas company personnel must excavate to shut off a leak or when a leak is due to a cracked pipe in the ground, fire department personnel will stretch a charged 1 3/4" line in full Personal Protective Equipment (PPE) and SCBA to provide stand-by protection.

### 3. Hazard & Safety Considerations

- a. All personnel working in the vicinity of a known or suspected gas leak shall wear full PPE and SCBA.
- b. Personnel working in a suspected ignitable atmosphere (i.e., attempting to shut off a gas line) shall be breathing air from their SCBA and be covered by a charged protective hoseline. The number of exposed personnel will be kept to an absolute minimum.
- c. A limited access zone shall be established and maintained around any gas leak and "fire line" tape should be used to identify this area.