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<b>SUBJECT</b>	<b>EFFECTIVE DATE</b>	<b>RESCINDS</b>
NATURAL/LIQUEFIED PETROLEUM	9/10/96	

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**REFERENCE**

Franklin County Fire Chiefs  
Norwich Township Fire Department SOG # 17

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**PURPOSE:**

The purpose of this document is to provide a guideline for the operation at incidents or situations that may arise during the course of an operation. Each member is expected to know, understand, and operate according to this guideline as each situation arises.

**RESPONSIBILITY:**

1. All Officers are responsible for the training of firefighting personnel and for ensuring proper compliance with this guideline.
2. All members have the responsibility to adequately learn this guideline and to carry out this policy.
3. All members shall show reasonable judgment in their use of this guideline.

**STANDARD GUIDELINES:**

**A. NATURAL GAS INCIDENTS:**

Fire Department units may encounter natural gas in a variety of situations and incident types, each presenting 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. The following guidelines shall be used whenever these types of situations are encountered.

**B. BACKGROUND INFORMATION**

Natural gas is much lighter than air and will dissipate rapidly outside. Inside buildings, however, it tends to pocket, particularly in attics, under stairs, and in dead air spaces. The flammable limits are approximately 3 per cent to 15 per cent in air.

Burning natural gas should not under most conditions be extinguished, since this changes the hazard from visible to invisible and creates an explosion hazard. Fires should be controlled by stopping the flow, eliminating ignition sources, and covering exposures.

Liquefied petroleum gas vapors are gases at normal room temperature and atmospheric pressure. They liquefy under moderate pressure, readily vaporizing upon release of this pressure. The potential fire hazard of liquefied petroleum gas vapors is comparable to that of natural or manufactured gas except that liquefied petroleum gas vapors are heavier than air. The ranges of flammability are considerably narrower and lower than those of natural gas, approximately 2 percent to 9 percent in air. Inside buildings, this gas will pocket in low air spaces. Burning liquefied petroleum gas should not, under most conditions, be extinguished, since this changes that hazard from visible to invisible, and creates an explosion hazard. Fire should be controlled by stopping the flow, eliminating ignition sources, and covering exposures.

**C. REPORTED GAS LEAK - NO FIRE OR EXPLOSION**

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

Use the Haz-Mat SOP as a basic guide for natural gas leaks. When responding to a reported gas leak, **NO fire or explosion,** the first arriving unit should: [a] stop short of the address; [b] walk up to leak area; [c] monitor the environment when approaching the leak. Only a minimum number of personnel should be allowed to enter to size-up the situation. Any additional units should be staged in a location outside of the "**Hot Zone**" (potentially dangerous zone).

**GUIDELINES FOR CONTROLLING A NATURAL GAS LEAK  
WITHOUT FIRE OR EXPLOSION ARE:**

- 1. Notify appropriate gas company of the leak. Ask the Gas Company to respond.**
2. Locate first unit approximately 300 feet short and upwind of the address. Establish Hot Zone. Personnel entering the hot zone shall wear full protective clothing including a SCBA with face piece in place and breathing off SCBA tank air and carry a Class B Extinguisher and monitoring equipment with them as they walk up to the leak. Stage all other equipment well out of **Hot Zone.**
- 3. Evacuate any civilians in the area of escaping gas. (Hot Zone)**
4. Attempt to locate the source of the gas and any shut-off devices that are available.

**C. REPORTED GAS LEAK - NO FIRE OR EXPLOSION continued:**

5. If the problem is an extinguished pilot light on an appliance, Fire Department personnel shall attempt to close the shut-off to that appliance. Fire Department personnel shall not re-light pilots even if they are assured there is not an explosive accumulation in the area. If the gas leak cannot be stopped by a in-line shut-off, then the gas supply to the building shall be shut off and red tagged until repairs are completed.
6. In any other gas leak situation within a building, the gas supply shall be shut off until repairs are completed. This is most easily accomplished with the cooperation of the gas supplier at the scene.
7. If there is any indication of gas accumulating within a building, evacuate civilians from the structure and control ignition sources. Shut off electrical service from an outside breaker if possible. Check for explosive concentrations with a combustible gas indicator if there is any suspicion of accumulation within a structure, and ventilate, using blowers to positive pressurize if necessary..
8. If Gas Company personnel must excavate to shut off a leak, provide stand-by protection with a charged line with firefighters in full protective equipment and with a Class B extinguisher.

**D. EXPLOSION HAS OCCURRED:**

Units arriving at the scene of a structure explosion must consider natural gas as a significant possible cause. Natural gas 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, through sumps, or through void spaces. In these circumstances the cause of the explosion may be difficult to determine.

**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 personnel in the area to an absolute minimum. Request immediate response of Gas Company.**

1. Notify appropriate gas (LP or Natural) company of the incident. Ask Gas Company to respond to scene. Request an ETA.
2. Observe for signs of gas leaks, i.e., smell of gas, flames coming through cracks in the ground or around foundations, bubbling through puddles, monitor readings.. Do not extinguish flames coming up through the ground.

**D. EXPLOSION HAS OCCURRED continued:**

3. Use combustible gas indicators to check suspected areas. Do not rely on gas odor -

sensory system may become numb after a while. Odorant may be filtered out by passage through the ground.

4. Check systematically using combustible gas meters. Start close to the area of the explosion and take several readings, If gas is detected, increase the area until the readings go to zero. Map the effected area.
5. If ground probes are available, probe the ground for underground leaks. Use ground probe and check in any holes for pockets of gas. Inside structures check around pipes, near cracks in foundations, in sump areas, near drains, and in high portions of the building.
6. Always beware of the possibility of additional explosions. Shut off pilot light and eliminate all possible sources of ignition in the effected area. If possible, cut off electricity from the outside to avoid arcing. Ventilate building where gas is found.
7. Work with Gas Company personnel to pinpoint location of any leak.
8. The Gas Company can provide additional monitoring instruments to detect leaks.

**E. PERSONNEL SAFETY**

1. All personnel working in the vicinity of a known or suspected gas leak shall wear full protective clothing including a SCBA with face piece in place and breathing off SCBA tank air.
2. Personnel working in a suspected ignitable atmosphere, (i.e., attempting to shut off or plug a gas line leak, or when monitoring) shall be covered by a charged protective hose line and class AB extinguisher.
3. The number of exposed personnel shall be kept to an absolute minimum at all times. Stage all other equipment well out of Hot Zone.

**A SAFETY PERIMETER SHALL BE ESTABLISHED AND MAINTAINED AROUND ANY SUSPECTED GAS LEAK.**