
13-3. NATURAL GAS INCIDENTS

J.F.D. 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 guidelines should be used whenever these types of situations are encountered.

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

Burning natural gas should not normally be extinguished, since this changes the hazard from visible to invisible and creates an explosion hazard. Fires should be controlled by stopping the flow.

13-3.1. EXPLOSION

Units arriving at the scene of a structure explosion must consider natural gas as a significant 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 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 J.F.D. personnel in the area to a minimum.

1. Look for signs of a gas leak, i.e., smell of gas, flames coming through cracks in ground or around foundations, bubbling through puddles. Do not extinguish flames coming up through the ground.
2. Do not rely on gas odor. Odorant may be filtered out by passage through ground. Use combustible gas indicators to check suspected areas.

3. Check systematically using combustible gas meters. Start close to area of explosion and take several readings. If gas is detected, increase the area until readings go to zero. Map the affected area.
4. Probe the ground for underground leaks. Use ground probe and check in any holes or caverns for pockets of gas. Inside structures, check around pipes, near cracks in foundations and in high portions of the building.
5. Always beware of the possibility of additional explosions. Shut off pilot lights and possible sources of ignition in the affected area. Cut electricity from outside to avoid arcing. Ventilate buildings where gas is found.
6. Work with the gas company personnel in pinpoint location of any leak. They can provide additional instruments to detect leaks.

13-3.2. REPORTED GAS LEAK (NO FIRE OR EXPLOSION)

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

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.

1. Evacuate any civilians in the area of escaping gas.
2. Attempt to locate the source of the gas and any shut off devices available.
3. In any gas-leak situation within a building, the gas supply shall be shut off and red-tagged until repairs are completed. This is accomplished with the cooperation of the gas supplier at the scene.

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4. 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. Check for explosive concentrations with a combustible gas indicator if there is any suspicion of accumulation within a structure. Ventilate, using blowers to pressurize if necessary.
 5. If gas company personnel must excavate a broken pipe line to shut off a leak, provide standby protection with a charged master stream device and firefighters in full protective equipment.

13-3.3. PERSONNEL SAFETY

All personnel working in the vicinity of a known or suspected gas leak shall wear full protective clothing. Personnel working in a suspected ignitable atmosphere (i.e., attempting to plug a leak in a gas line) will use S.C.B.A. and will be covered by a charged protective hose line, if feasible. The number of exposed personnel will be kept to an absolute minimum at all time.

A safety perimeter shall be established and maintained around any suspected gas leak.

Diesel apparatus shall not be operated in areas of natural gas leaks to prevent the possibility of engine damage due to the intake of natural gas vapors into the engine.

Standard gasoline engine vehicles must also remain out of the area due to becoming a source for ignition.

J.F.D. personnel should not enter unsafe trenches. A safe distance from the edge of any trench must be observed.