

# **Operational Procedures at Natural and Liquefied Petroleum Gas Leaks**

**# A-013**

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## **I. Information**

- A. As much information as possible should be obtained from the person reporting the leak; information such as the type of product, amount or size of the container, how long has it been leaking, are there any known ignition sources in the vicinity.
- B. Size-up (gathering of information) should start as soon as the alarm is received and continue while responding to determine the extent and details of the leak.
- C. Once size-up has been completed, apparatus should be staged so that only the minimum amount of equipment and personnel become exposed to the potential of an explosion.

## **II. Operational Procedures**

- A. If the strategy is to enter the affected area or structure, a briefing of personnel should occur with the pertinent details covered such as the type of gas, source of leak, ventilation in place, use of SCBA, and explosive metering device.
- B. The tactics should involve the minimum number (at least 2) of personnel needed to accomplish them, and all remaining personnel shall be staged in a safe and secure area. All operations that can be completed outside of the structure should be done outside. Every reported gas leak must be treated seriously and the risk to the firefighters managed as safely as possible.

## **III. Use of Equipment**

SCBA must be worn in contaminated or suspected areas of gas vapors. Should there be a leak; the gas may displace the air in the area such as a basement. The area would be oxygen deficient, and you could suffocate. Should an explosion occur, you will need to not only survive the explosive effect but also the burning gases. While the fire may only be a momentary flash, should you be inhaling a breath at that moment you could severely damage your respiratory system.

## **IV. General Considerations**

### **A. Characteristics of Gases**

- 1) Natural gas (methane) is colorless, treated with an odor detector, lighter than air, rises, and may be more predominant in the upper levels of a structure.
- 2) LP gas (propane or butane) is colorless, treated with an odor detector, heavier than air, settles, and may be more predominant in the lower levels of a structure. Caution if the structure has strong air currents. As an example, up open stairways or stud channels as may happen in a wood frame balloon constructed building. The vapors may also be found in the upper levels as well as the lower.

### **B. Ignition Sources**

While it is impossible to identify every potential ignition source, some of the more common ones to be considered are as follows:

- a) Pilot lights of appliances
- b) Motors that may start

- c) Arcing from electrical switches opening or closing -- could be as small as a flashlight to as large as a knife switch on an electrical cut off
- d) Static electricity arc

While it is impossible to outline every possible problem that may be encountered or anticipated dealing with gas leaks or solutions to resolve them, they should be treated with the utmost care. Personnel exposed to the consequences of an explosion should be limited to only the number required to perform the tactical assignments.

It is essential that a good size-up be done, the real problems identified, a sound strategy developed, and tactical assignments made to support the strategy.