

THE RESCUE COMPANY

EMERGENCIES: PART 1, GAS LEAKS BY RAY DOWNEY

Fire service personnel respond to a wide range of emergencies. Because of their training, ability to remain calm during disasters, and daily exposure to high-hazard incidents, they are called on by the general public to assist in everything from rescuing cats from trees to rescuing trapped workers from excavation cave-ins. The local firehouse has always been the place the public could go to for a bandage or help with the unexpected delivery of a newborn.

Logically, because of the fire department's unique capabilities and ingenuity, the public calls on them often: Many departments' emergency response calls account for one-third of their entire responses for the year. While this comes as no surprise, what is surprising is the number of emergency incidents of great magnitude that have taken place recently:

- Hurricane Andrew tested firefighters in Florida and Louisiana in August 1992. Loss of electrical power and communications, evacuations and medical assistance, gas leaks, water

main disruptions, nonexistent or non-working traffic lights, trees and other debris blocking roads—all posed a challenge to firefighters. An elderly Florida man experienced chest pains and had no way of summoning medical assistance (telephone service had been disrupted). People had to flag down passing military or law enforcement patrols in such cases. Then the fire department was notified through a combined dispatching system. Heavy gridlock, inoperable traffic signals, missing street signs, and no street lighting made response difficult.

- In late February of this year tornadoes touched down in Tennessee and Georgia, killing three people, injuring more than 70, and leaving hundreds homeless. Mobile homes were especially hard hit.

- Thirty-five people were injured in Chicago earlier this year when a Chicago Transit Authority train rear-ended another train. Firefighters were kept busy removing victims for transport to local hospitals.

- Heavy rains in southern California this year caused serious damage and resulted in lives lost. Raging floodwaters washed away bridges and roads in Los Angeles County. Mudslides were responsible for the loss of a number of million-dollar hillside mansions.

- The Nor'easter in December 1992 caused millions of dollars in damage to the East Coast. Firefighters rescued stranded victims trapped by flooding waters and handled thousands of emergency calls during the two-day storm.

- An avalanche in Aspen, Colorado, buried cars on a highway and strand-

ed five cross-country skiers for four days. A massive search operation was about to be called off when two of the skiers made their way to a remote telephone. Hundreds of rescuers were involved, using a helicopter, an airplane, and snowmobiles. Nine people died this past winter in Colorado as a result of avalanches.

Granted, the above incidents may happen infrequently, but don't think that they can't happen to you. You must train for all types of incidents, no matter how common. Following is the first of a series of articles on emergencies.

GAS EMERGENCIES

One of the most frequent emergencies to which firefighters respond is the gas emergency. A recent article in a Long Island weekly publication attests to this. The New York State Public Service Commission reported that LILCO (Long Island Lighting Company) recorded more than 8,000 gas leaks in the last three months of 1992. The problem associated with approximately two-thirds of the leaks was the design of a particular gas coupling. Forty thousand of these couplings were installed throughout the system during the mid-1950s. They are found primarily in street connections leading to residential service customers. LILCO has been maintaining an aggressive gas-leak survey program to address the gas-leak problem and is continually upgrading the service that has these particular couplings.

Gas leaks are found outdoors as well as indoors; as previously men-

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Fire departments must pursue comprehensive training for a wide variety of emergencies. Above, a gas explosion in the Harlem section of New York City caused massive destruction of a high-rise residency. Never underestimate the potential of a gas leak. (Photo by Art Knobloch.)

tioned, the LIICO coupling leaks were found in the street connections leading to residential homes. Often, outdoor gas leaks are caused by pipes or couplings broken or cracked during excavating operations. Although most local laws require contractors to obtain permits and to be aware of pipe locations, accidents frequently happen during construction digging

operations. Murphy's Law usually applies: The largest pipe in the most dangerous location is usually the one involved.

The first rule that always applies when dealing with gas emergencies is to call the gas company immediately. At times small leaks or cracks can be controlled by plugs or patch kits designed for these purposes. Remember

that gas lines in the street usually contain high-pressure gas; therefore, always use extreme caution when operating in these areas. Even though gas is lighter than air, check every crack and crevice for accumulation of gas.

After immediately notifying the gas company, make the surrounding area safe by roping it off. Remove all non-emergency personnel from the involved area; call for police personnel to secure the area. Have a handline stretched and charged and ready for any resulting fire or explosion.

A GAME PLAN ESSENTIAL

During the early days of my career, I was working at a gas leak in the street. An experienced incident commander, realizing the seriousness of the leak, set a game plan into action, which saved a number of lives. The leak was of such serious proportions that the gas company had received numerous phone calls indicating a very noticeable gas leak. The fire department received a routine call for a gas leak in the street but was not told that the gas company was responding. The gas company crew arrived within minutes of the fire department. The area immediately was evacuated and roped off to prevent anyone from entering the endangered area. The incident commander immediately ordered a handline stretched, charged, and positioned near the manhole where the heavy gas leak was most noticeable. Members kept a safe distance, but they were close enough to operate the handline, if necessary. The gas company had removed the manhole cover after verifying that one of the gas lines passed through the manhole, under the sidewalk, and into a commercial store located in direct line with the manhole.

The gas company was in the process of attempting to shut down the system when an explosion suddenly occurred and a massive fireball came up and out of the manhole. The engine company immediately extinguished the fire (of the burning vapors) and advanced toward the manhole to put out the fire that engulfed

GAS LEAKS

two members of the gas company crew who had been looking in the manhole. After extinguishing that fire, the engine company members put the hoseline into the manhole to extinguish the fire on the crew member still in the manhole. The crew member in the manhole was rescued and treated for major burns.

The incident commander's order to immediately stretch and charge a handline saved a number of lives. A fellow firefighter and I were walking toward the manhole when the explosion occurred. We actually were lifted up and blown backward some five feet. Luckily, we were not seriously injured. One reason we weren't hurt was that we had been following an-

other of the incident commander's orders—not to stand near the manhole. General fire service practice dictates that you shut off the gas prior to extinguishment—that a burning gas fire not be put out except in extreme emergencies. This was an extreme emergency.

PROCEDURES AND PRECAUTIONS

The following procedures and precautions apply when handling outdoor gas leaks:

- Call the gas company immediately.
- Locate the leak.
- Stretch a charged handline.
- Rope off the area.
- Keep all nonemergency personnel out of the area.
- Keep all vehicle traffic out of the area.

- Have police department personnel present to control vehicle and pedestrian traffic.

- Stop the leak when possible, using nonsparking plugs, a patch kit, clean uncontaminated rags, or other appropriate equipment.

- Eliminate any potential ignition source.

- Use gas-detection equipment to monitor the atmosphere.

- Check surrounding buildings for vapors, overcome occupants, and other problems associated with the emergency.

- Shut down the curb valve if the leak is between the curb valve and the building.

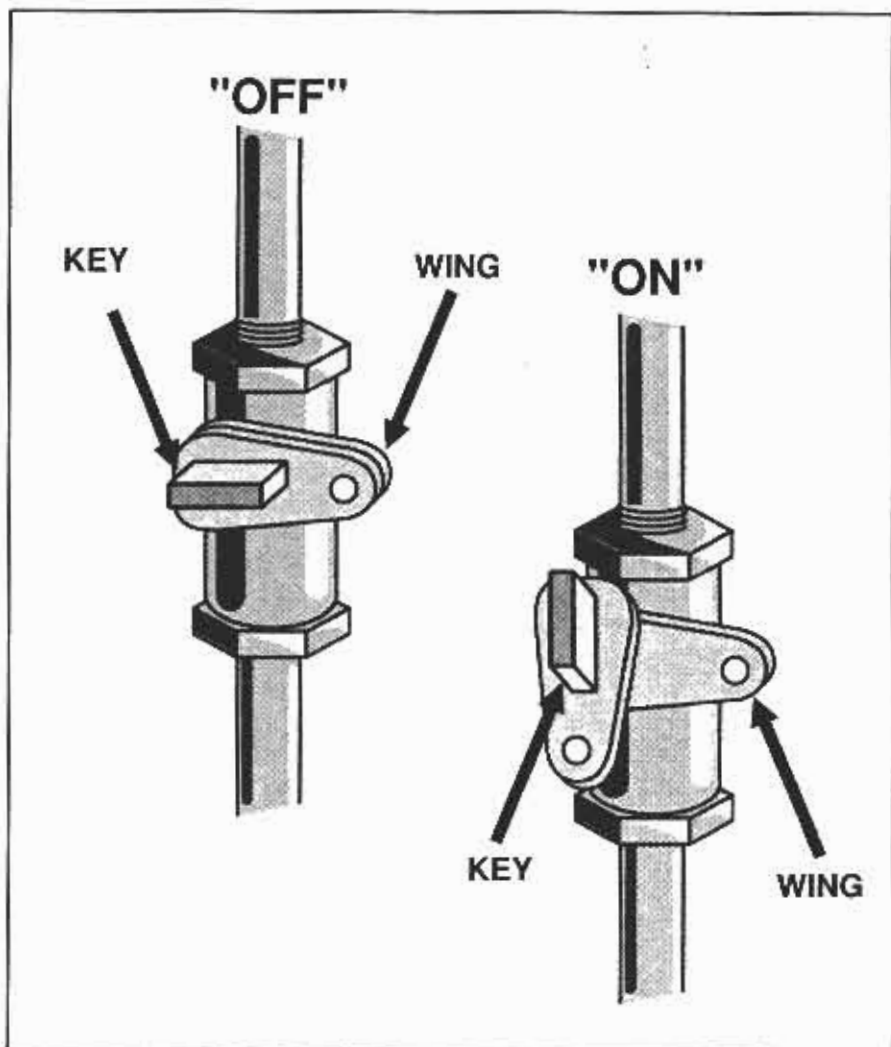
- Never turn the gas back on; the gas company will take care of restoring gas service.

INDOOR LEAKS

Most gas leaks occur in residential buildings and generally involve a stove or heating unit. These leaks can range from a minor pilot light leak to major leaks involving the piping or couplings within the service system inside the structure. The primary rule to follow is "Never underestimate the potential of a gas leak."

Gas supply: home appliances. Gas supply lines can be shut off in a number of ways. Gas supplying a stove usually can be shut down at the appliance itself. The valve usually is accessible and generally has a flexible tubing running from the gas line to the appliance. A one-quarter turn at the valve will close the supply line. Many firefighters, having responded to many gas emergencies of this kind, carry pliers in their turnouts specifically for this purpose.

In my home, I have three gas shut-offs: one at the gas stove in the kitchen, one at the supply line to my gas heater that supplies the heat for the house, and one at the supply line to the hot water heater, which is separate from the heating unit. They all can be manually shut off with a one-quarter turn of the valve. In addition to the gas valves, an electrical switch marked "gas heater" also should be shut off should an emergen-



cy occur.

Meter. Shutting off the gas supply at the meter requires only that the valve be turned one-quarter turn to the stop. Doing this aligns the key with the wing so that it is at right angles to the piping. The openings in the key and valve allow the gas company to secure the meter by locking it in a closed position, when necessary—whether it be for nonpayment or emergency purposes.

Multiple-family dwellings. Shutoff valves usually are on the individual meters supplying the various apartments. When shutting down the meter for an individual apartment, make sure you shut down the proper meter. The meter valves can be shut down with pliers (as mentioned) or the forked end of a hand tool. If the valve turns beyond a quarter turn, the valve may be reopening. In this case, shut the gas supply at the main shutoff. At times, you may have to shut down the main supply to shut down the supply line involved. Since gas meters and main shutoffs may be located inside or outside the building, a thorough search is needed.

The main. Usually, a main valve is shut down in the same way as a meter valve—that is, giving it a quarter turn so that it is at right angles to the piping. If your gas company uses a shutoff valve other than the quarter-turn valve, your department should have a written procedure for shutting down meters with that kind of valve. Most gas companies usually will conduct training sessions with fire departments to explain to and train firefighters in the proper procedures for handling gas emergencies. Videotape lessons also are very helpful for training.

Curb valves. Some gas companies' services have additional shutoff valves located outside the building. A curb valve, usually located on a sidewalk in front of the building, can be easily identified by its cover, which is made of brittle concrete that can be easily broken. The cover has a wooden shelf below it to prevent dirt and other materials from clogging the valve. The valve is shut down by using a gas

shutoff key that fits over the shutoff valve on the pipeline. The number of turns needed to shut off the gas depends on whether the gas company has a low- or high-pressure system.

Locating curb valves can be difficult at times. To make it easier, some gas companies have uniform systems. Instructions for locating the curb valve may be on a tag attached to the meter or vent. This is another area that would be covered in training sessions with the gas company.

Street valve. Fire personnel should never operate this valve. It usually is a control point on a larger distribution system. Shutting it could create a more serious emergency. When in doubt, don't shut a valve down: Take all the necessary precautions and wait until the gas company arrives.

PROCEDURES AND PRECAUTIONS

When handling indoor leaks, the following procedures and cautions apply:

- Never underestimate the seriousness of a gas leak.
- Locate the leak.
- Shut down the leak when possible.
- Vent the area.
- Search the occupancy for victims who may have been overcome by the gas.
- When necessary, have a charged handline standing by.
- Use gas-detection equipment to test the atmosphere.
- Call the gas company when conditions indicate a situation that requires its presence. If in doubt, call. (Note: In many large residential occupancies, maintenance personnel or mechanics trained to handle minor gas emergencies usually are on hand when a line supplying gas to a stove must be shut down.)
- Never turn the gas back on; that's a job for gas company or maintenance personnel.
- Always eliminate all ignition sources.

Never be complacent about gas emergencies; they very easily could escalate into much more serious incidents. ■

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