

# FIREHOUSE®

## Weekly Drill

### DRILL #135: NATURAL GAS EMERGENCIES

#### Introduction

More and more fire departments are being called to investigate the “odor” of natural gas. The funny thing is natural gas is actually colorless and odorless, but people still claim to smell it! That's because the utility companies add the odorant mercaptan to give “natural” gas its distinct smell.

Natural gas emergencies can be classified in one of three categories: inside leaks; outside leaks; leaks that start fires.

The most dangerous are those that occur inside structures, simply because there is a great potential for an explosion. This does not mean outside leaks are not something to be concerned about, they are. Those that result in fire are the least dangerous for responding firefighters, as the potential for an explosion are slim.

Natural gas is non-toxic, although it does displace the oxygen. For this reason, firefighters who respond to calls for natural gas odors need to use monitoring equipment that will check for both oxygen levels and explosive limits.

Before going any further, I want to remind firefighters who operate in a suburban or rural area that they might run into areas that are not using natural gas, but rather are using propane. The dangers are the same; however, the properties of these two gases are different. Natural gas is lighter than air and rises, while propane gas is heavier and will sink.

When investigating inside leaks, the fire department should have an action plan to follow. The following is a short list to get you started:

- Notify the utility company
- Try to eliminate any ignition sources
- Figure out the intensity of the leak
- Locate, and if needed, stop the flow by shutting of the supply
- Perform a search of the structure and start a ventilation operation to eliminate any explosion.

Outside leaks allow the gas to seek its own destination. For the most part, the gas will rise, but lines are buried below ground thereby making it difficult to rise. In this situation, the gas will more likely follow the piping and



find its way into the basements of buildings. Locating these leaks is not an easy task, as the gas can travel great distances before being detected. For departments, located in the north, winters can be even more problematic, as the frozen ground will keep the gas from coming up through the soil. Tactics to use for outside leaks consist of notifying the utility company, approaching from upwind and isolating any and all ignition sources.

When we respond to calls with natural gas leaks and the gas is burning, our tactics should be to notify the utility company, protect exposures and, in general, allow the product to burn until the supply can be shut off. When the gas is burning we know where it is. By extinguishing the fire, we will have created a hazard because the gas is colorless and we cannot predict where it will go. However, there are the rare instances (to save a life) that we may need to extinguish a fire. In such instances the fire can be extinguished using a dry chemical or CO<sub>2</sub> extinguisher. Larger fires may dictate a fog stream. In any event, keep in mind the dangers of extinguishing a fire and allowing the gas to flow freely.

*—Prepared by Russell Merrick*