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Training Reps

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### Natural Gas Emergencies: Single and Multi-Occupancy Structures

Gas emergencies account for a significant number of our incidents that we respond to. These calls may seem routine but can be very complex and time consuming for Fire Departments. While we need to make the incident safe and work together with BGE, we need to have a general understanding of natural gas, how it reacts, places to monitor, and the do's and do not's when it comes to operations.

Natural gas is an odorless, colorless, and flammable gas. BGE uses ethyl mercaptan to give the natural gas its odor. This process takes place at multiple pumping stations throughout the service territory by "wicking" the ethyl mercaptan into the gas piping. Ethyl mercaptan is so potent that if you were to drop one eye dropper drop near the inner harbor you would smell it as far as Hunt Valley (this event happened at BGE's Plant in South Baltimore in the early 2000's and caused an abundance of odor incidents within several jurisdictions). Natural gas typically has a lower explosive/flammable limit (LEL/LFL) of 5% and an upper explosive/flammable limit (UEL/UFL) of 15%, or a flammable range of 5—15%. Natural gas vapors are lighter than air and will rise. When monitoring a structure be sure to take readings at the ceiling, middle, and floor levels and on each division.

**<u>TIP</u>**: Utilize the "Sniffer" at the door or window seal of a residence by pressing against the door/window to gap the seal. This can give you the quick answer as to if gas is present in the atmosphere within the structure. If you get a reading on the "sniffer" utilize your MX4/Multi-Rae to get an active reading around the seal prior to entry.

### **Single Occupancies**

Single family homes can be simple responses for natural gas emergencies. Common findings include unlit pilot lights on gas appliances (stoves, water heaters, etc.) or burners left on but not lit. Most of the time a simple ¼ turn shut off valve located near the appliance will mitigate the leak. However, some times the gas meter has to be turned off. These valves can be located near the meter where it enters the wall in a basement or on the riser coming out of the ground outside. Crews should utilize the BGE service valve which is prior to the gas meter assembly; this will ensure that the gas is shut off prior to any possible leaks at the meter and beyond.

### **Multi-Occupancy Structures**

For larger structures you may be required to locate the meter bank, which is either located outside or in the basement of a complex. Usually, the meters are labeled for where they supply (ex. Apartment A-1). Responding to a multi-occupied structure can be challenging to locate which residence has the natural gas leak. When you locate the gas meter bank, look at the meter dials. Look for the meter that's ½ foot hand is spinning faster than the others. This dial will move the fastest of all the dials on the gas meter and have to complete four full rotations prior to the two (2) foot hand spinning once. This could be a good indicator of which apartment should be further investigated. Obviously, there could be a legitimate reason for the additional gas consumption: cooking, showering, etc. Much like carbon monoxide incidents, be sure to check the exposures in a multi-occupancy structure, as gas can easily migrate from one occupancy/building to another.

Row homes and duplexes can utilize what's called "branched services." This is where one single underground service is ran into the structure and then "branches" to two meters within the respected residences. When shutting off the gas meter, you will notice a large washer placed around the gas piping near the BGE service valve, this will indicate a "branched service."





# Training Reps



Handling Gas Emergences Safely

(BCoFD, Tactical SOP #21)

- Apparatus to position a minimum of 300ft from Structure, secure water source
- Notify BGE or Gas supplier Immediately
- Anticipate a violent explosion (set up collapse zone, isolate the area, evacuate 3 homes in each direction)
- Entry Crew in Full PPE, including SCBA & portable radios on the correct talkgroup
- Start meter in fresh air
- Gas Feed Fires: DO NOT extinguish fire prior to turning off the gas source
- Remove any potential ignition sources prior to entry-beware of static electricity \*
- Never turn on any lights or use any light switches within a gas filled environment
- Secure all ignition sources prior to ventilating structure
- Never shut off a gas valve with a tool large then a spanner wrench or a pair of pliers

## **BGE Gas Pressures and Equipment**

Typically residential or small commercial:

Low Pressure: 5-10 inches of water column, no regulator installed at meter assembly Medium Pressure: 10psi and regulated with regulator at meter assembly, regulator needs to be vented outside of structure.

Sometimes the regulators go bad and will vent gas, another place to check if unable to locate the source.

Typically commercial, can be residential in some areas:

- High Pressure: 100psi and regulated with regulator at meter assembly. Meter assembly will be outside structure unlike medium pressure. Sometimes the regulators go bad and will vent gas, another place to check if unable to locate the source.
- Over High Pressure (OHP): 100+ psi, this piping will be welded prior to the gas regulator and will have multiple regulators to step it down to an operating pressure.



(1/2 Foot hand circled in red)



(Large Meter Bank at a Multi-Occupancy Structure) (1/4 turn valve circled in yellow)





