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OPERATIONS MANUAL

STANDARD INSTRUCTION 02, SECTION 34

SPECIAL OPERATIONS: NATURAL GAS EMERGENCIES, PROCEDURES (New)

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I. PURPOSE

The purpose of this policy is to provide operational guidelines for San Diego Fire-Rescue Department (SDFD) responses to natural gas emergencies.

II. SCOPE

This policy shall apply to all SDFD Personnel.

III. AUTHORITY

The Fire Chief authorizes the information within this policy.

IV. DEFINITIONS

- A. Broken and Blowing: Terminology used to describe a natural gas line that is damaged on the supply side of the gas meter. These high pressure natural gas lines can range from a hissing sound to a jet engine type sound during release of product indicating a “broken and blowing” natural gas line.
- B. Leak: The escape of natural gas that has been detected by smell (odor), sound, or via Combustible Gas Detector, but the pipe is not “broken and blowing”.
- C. Natural Gas: A colorless, odorless, and highly flammable hydrocarbon consisting primarily of methane (97%) and ethane. The natural gas carried in SDG&E gas lines is odorized to aid in detection of leaks. Natural gas is lighter than air with a specific gravity range of .60 to .70.
- D. Large Diameter Gas Leak: Any natural gas leak that is on the supply side of the gas meter and the gas line can be described as broken and blowing.
- E. San Diego Gas and Electric: The City of San Diego utility company in charge of natural gas distribution, herein referred to as SDG&E.

V. POLICY

- A. Dispatch Response
 - 1. Odor of natural gas, – 1 Engine
 - 2. Broken and Blowing - Large Diameter Gas Leak – 1st Alarm Residential Structure Response 4 Engines, 1 Truck, 2 Battalion Chiefs and 1 ALS ambulance. FCC will also request SDGE immediate need.
- B. Standard Operating Procedures – Natural Gas Emergencies

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1. Odor of natural gas/natural gas leak inside of a structure
 - a. Personnel shall respond in full structural PPE.
 - b. Fire officer will determine the need for any additional resources.
 - c. Isolate and shut off gas leak if it can be done safely at the appliance or at the consumer gas meter.
 - d. Request SDG&E and **NEVER** turn the gas back on.
 - e. Do not enter a structure if the atmosphere is at 10% or greater of the LEL (.45%). If gas levels are suspected to be that high, it may be necessary to call for a truck company for air monitoring purposes.
 - f. Monitor the atmosphere with SDFD Combustible Gas Detectors and determine the need for ventilation or evacuation. Intrinsically safe mechanical blowers or natural ventilation is recommended due to the high flammability of natural gas.

2. Large Diameter Gas Leak (gas line is broken and blowing)
 - a. Personnel shall respond in full structural PPE.
 - b. The first in fire officer shall assume IC, investigate and attempt to determine the source.
 - c. If a large diameter gas leak is confirmed (i.e. gas line on the supply side is broken and blowing), the IC should:
 - 1) Attempt to isolate the gas leak, deny entry and eliminate/control ignition sources.
 - 2) Immediately request that SDG&E be notified that there is a gas line that is broken and blowing and request an ETA for the SDG&E control crew.
 - 3) Request San Diego Police Department units for traffic control/evacuations.
 - d. Stage apparatus in a safe area, preferably upwind of the gas leak.
 - e. **NEVER** attempt to shut off the gas leak on the supply side of the gas line. Supply lines may only be shut off by SDG&E.
 - f. Identify water source(s) and pull a sufficient number of charged exposure lines. The exposure lines shall be at a minimum 1 ¾" hose lines.
 - g. Use a SDFD Combustible Gas Detector to:
 - 1) Monitor the atmosphere around the gas leak and establish the extent of the natural gas plume using a reading of 10% or greater of the LEL (.45%) to determine the extent of the plume.
 - 2) Monitor the atmosphere in adjacent buildings/areas using a reading of 10% or greater of the LEL (.45%) to determine whether the building/area should be evacuated.

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- h. Determine the need to evacuate or shelter in place based on readings obtained by atmospheric monitoring with SDFD Combustible Gas Detectors.
 - i. The first in Battalion Chief *shall*:
 - 1) Assume IC
 - 2) Determine the amount of SDFD resources needed for mitigation
 - 3) The determination will be made after SDFD Combustible Gas Detectors have been used to determine the extent of the gas plume at the leak site, and gas levels in adjacent buildings/areas.
 - 4) A SDFD Combustible Gas Detector reading of 10% or greater of the LEL (.45%) will be used as a guide in determining the amount of SDFD resources that are needed.
 - 5) The decision to request or retain resources shall be made based on specific factors related to the incident.
 - 6) Factors include but are not limited to:
 - a) Location of the incident
 - b) Gas plumbing
 - c) Exposures
 - d) Evacuations
 - e) Any other safety factors deemed necessary to retain resources.
 - f) This decision should be made with the input of the SDG&E supervisor.
 - j. Sufficient SDFD resources determined by the IC shall remain at the scene until the gas leak has been stopped by SDGE and it is determined that the area and buildings are safe to re-enter.
3. Natural Gas Leaks on Fire
- a. If the gas is burning on the supply side of the gas line, do not attempt to extinguish the gas burning from the leak. Instead, evacuate the affected area, protect exposures and wait for SDG&E to shut off the gas line.
 - b. If the gas is burning on the consumer side of the gas line (after the gas meter), first attempt to shut off the gas locally (at the appliance) and if that is not possible then shut it off at the consumer gas meter. If both of those fail, use a fog stream to keep surrounding combustibles wet and await SDGE to shut off gas.