

**LAKEWOOD FIRE DEPARTMENT
STANDARD OPERATING GUIDELINES**

SOG NUMBER: 301.10	EMERGENCY OPERATIONS
DATE IMPLEMENTED: JULY 11, 2017 DATE REVISED:	TITLE: NATURAL GAS EMERGENCIES

PURPOSE:

These provisions are promulgated and designed to provide a structured approach for the safe response to and operation on the scene of incidents involving natural gas (methane).

SCOPE:

This guideline shall apply to all Department personnel when responding to and operating on the scene of a natural gas (methane) emergency.

NATURAL GAS (METHANE):

Natural gas or methane is colorless, tasteless, and odorless. Because it is odorless, a powerful chemical called mercaptan is added, in very small amounts, to give the distinctive smell of rotten eggs. The ignition point of natural gas is in the range of 900 to 1200 degrees Fahrenheit and this temperature is reached by pilot lights, flint sparks, matches or sparks from electrical switches or motors. The explosive range of natural gas is 5 percent to 15 percent. Natural gas is lighter than air and it will rise and diffuse rapidly when it escapes to an open area.

GAS LEAK – OUTSIDE OF BUILDING:

1. Notify NJNG immediately.
2. Extinguish all open flame in area of leak; prohibit smoking. If leak ignites, do not extinguish.
3. Clear safe area around location of leak.
4. Check surrounding buildings, particularly basements.
5. Restrict all traffic; keep apparatus out of affected area.

GAS LEAK – INSIDE OF BUILDING:

1. Notify NJNG immediately, in addition to shutting off leak, if possible.
2. Evacuate building if strong odor is present.
3. Ventilate building by natural means (windows, doors, etc.).
4. Do not turn electrical appliances on or off; do not operate doorbells, telephone or cell phones.

5. Turn on flashlights before entering building.
6. Do not transmit with portable radio.
7. Use SCBA if necessary.

BURNING GAS – OUTSIDE OF BUILDING:

1. Notify NJNG immediately.
2. Do not extinguish a gas fire unless a life is in jeopardy; use fog streams or dry chemical extinguisher.
3. Check surrounding buildings for gas accumulations.
4. Clear safe area
5. Do not shut off any underground valve.
6. Remember that burning gas will not explode.

GAS LEAKS – MANHOLES, VAULTS, SEWERS:

1. Notify NJNG immediately.
2. Clear safe area.
3. Ventilate by natural means; be careful of sparks when removing manhole covers. Do not use smoke ejectors.
4. Never enter a manhole, vault or sewer until it has been checked with a Gas Detector and then only with a SCBA and lifeline.

In situations involving gas leaks inside buildings, manholes, vaults and sewers, in addition to notifying NJNG, the atmosphere shall be tested by means of a Gas Detector before entering, using the following guidelines to ensure personnel safety:

METER READING

ACTION

Below 10% LEL

Continue investigation

At or Above 10% LEL

Explosion hazard; withdraw from area immediately

WINTER GROUND FROST:

Ground frost during the winter season increases the risk of natural gas migrating into buildings where explosive levels of natural gas can accumulate. The Office of the State Fire Marshal (Awareness Alert 17-1, Issued January 9, 2017) recommends precautions, beyond normal gas leak protocols, be taken during these periods to protect emergency responders and the public; however, nothing stated or implied herein shall preclude them from being implemented outside of the winter season. These precautions are listed within the following sections of this SOG:

- Responding to Natural Gas Incidents.
- Evacuating Buildings.
- Protecting Emergency Responders using Distance and Shielding.

RESPONDING TO NATURAL GAS INCIDENTS:

1. Limit potential ignition sources by:
 - a. Parking away from manholes, storm drains and valve boxes.
 - b. When alerting residents, knock on doors, DO NOT ring door bells.
 - c. Do not use electronic devices unless they are intrinsically safe.
2. Park away from the suspected leak and walk into the area remaining aware for signs of gas leaking:
 - a. Odor, sounds – gas blowing / hissing or signs of gas vapor.
3. When signs of a gas leak are detected especially inside structures, evacuate immediately.
 - a. When in doubt, evacuate and secure the area for 330 feet (a football field).

EVACUATING BUILDINGS:

1. Instruct building occupants to evacuate immediately and NOT to smoke, use electric devices (switches, automatic garage doors, etc.) or electronic devices (cell / smart phones).
2. Move occupants at least 330 feet (a football field) away from the building with the leak.
3. Evacuate surrounding structures as multiple buildings may have gas leaking.
4. Secure the area, establish the hot zone and plan for the arrival of additional responders.
5. Manage the evacuees – collect contact information and do not let them back into the area until safe readings are obtained with gas detection equipment.

PROTECTING EMERGENCY RESPONDERS USING DISTANCE & SHIELDING:

1. Plan for and have a contingency for a building explosion or explosions.
2. Keep responders at least 330 feet away from gas filled structures.
3. Limit responder access less than 330 feet to those needed in that area.
4. Use large vehicles to shield responders from potential explosions / blast zones.
5. Keep command post and staging areas shielded.
6. Locate command post and staging areas upwind and uphill.
7. Turn-on Gas Detectors before entering the leak area.
8. A reading of 10% or higher of the Lower Explosive Limit (LEL) requires the evacuation of the building and this shall include emergency responders.
9. Disseminate information about the scene with other responders as well as NJNG. This shall include: best route in, staging, gas detector readings, evacuation status, etc.