



Carroll County Department of Fire & EMS Standard Operating Procedure

DOCUMENT DETAILS

Standard Operating Procedure: 4.09	Effective Date: 1/6/2025
Subject: INSIDE GAS LEAKS	Section: Fire/Rescue Operations
Authorized: Deputy Chief Paul Supko	Revision Date: 3/11/2025

Applicability: Volunteer Career

I. PURPOSE

Responding to reported gas odors presents unique safety challenges for fire departments. In Carroll County, gas odor calls are a frequent occurrence, many of which are resolved without incident.

However, these calls can be deceptive and pose significant risks. Across the country, gas-related incidents have led to the injury and loss of life of several firefighters.

This Standard Operating Procedure (SOP) outlines a structured approach for investigating reported gas odors while minimizing risks to personnel. It also ensures that appropriate response capabilities are in place should the situation escalate. Gas leaks are inherently hazardous and should be treated as a Hazardous Materials (HazMat) event, requiring careful and methodical handling to safeguard the safety of responders and the public.

II. DEFINITIONS

Combustible Gas Indicator (CGI): A device that detects the presence of combustible gases, measures concentrations, and monitors the atmosphere.

Liquefied Petroleum Gas: A mixture of gases at normal room temperature and atmospheric pressure. They liquefy under moderate pressure, readily vaporizing upon release of this pressure. The potential fire hazard of liquefied petroleum gas vapors is comparable to that of natural or manufactured gas, except that liquefied petroleum gas vapors are heavier than air. The ranges of flammability are considerably narrower and lower than those of natural gas, approximately 2 percent to 9 percent in air. Inside buildings, this gas will pocket in low air spaces.

Natural Gas: A gas that is much lighter than air and will dissipate rapidly outside. Inside buildings, however, it tends to pocket, particularly in attics, under stairs, and in dead air spaces. The flammable limits are approximately 3 percent to 15 percent in air.

LEL (Lower Explosive Limit): The lowest concentration (percentage) of a gas/vapor in air that is capable of producing a flash of fire in the presence of an ignition source (arc, flame, heat). Concentrations lower than the LEL are “too lean” to burn.

UEL (Upper Explosive Limit): The highest concentration (percentage) of a gas/vapor in air that is capable of producing a flash of fire in the presence of an ignition source (arc, flame, heat). Concentrations higher than the UEL are “too rich” to burn.

ERG: Emergency Response Guidebook as distributed by the U.S. Department of Transportation. Used to establish staging distance and assess hazards.

III. PROCEDURES

A. Operational Priorities

1. Operational Priority #1: Life Safety

Life safety is the highest priority at all incidents. In gas emergencies, life safety is accomplished by evacuating all persons in the hazard zone and denying entry to other persons throughout the incident until the area is deemed safe. In addition, crews should search all areas suspected of being affected by the leak, remove occupants to a safe area, and provide medical treatment if needed.

2. Operational Priority #2: Identification and Control

Identify the type of gas, source, and concentration of gas with a specific focus on the flammability range and CO levels. Locate and control the source of the gas.

3. Operational Priority #3: Exposures

When a hazard is confirmed, any exposure that may not be directly affected by the gas leak but is considered in a hazard zone should be evacuated, searched, and monitored for gas.

4. Operational Priority #4: Ventilation

After controlling the source, thoroughly ventilate all affected areas and monitor for an appropriate period of time to ensure no other sources are present.

B. Guidelines

1. First Arriving Unit (Engine, Special Service or Command Officer)

The first arriving unit is responsible for the following, with the exception of a command officer who may decide to delegate the listed tasks.

- a. Assume or address the command function.
- b. Complete the following actions:
 - i. Immediately address evacuation needs
 - ii. Provide a complete BIR
 - iii. Provide a 360 radio report (when safe to do so)
- c. **Investigate the area/structure for obvious odors and monitor the environment with an appropriate gas meter.**
 - i. Announce incident action plan (IAP) including:
 - ii. Action being taken
 - iii. Entrance into the structure being utilized
 - iv. Location of the operation
 - v. The number of members from your crew operating in the IDLH
- d. Communicate Critical Benchmarks:
 - i. Odor present
 - ii. Meter readings
 - iii. Identification of source
 - iv. Control of the source
- e. Provide updated "condition action needs" (CAN) reports.

2. First Arriving Engine Company

a. Apparatus Positioning

The first arriving engine shall assume a position no closer than 330 feet from the reported address. The unit should block the road and deny vehicle and pedestrian traffic access.

b. Water Supply Responsibilities

The first arriving engine shall secure a continuous/adequate water supply. In a hydrant area, this is accomplished by either staging at a hydrant no closer than 330 feet from the dispatch address or laying out from a hydrant and staging short, no closer than 330 feet from the dispatch address. In non-hydrant areas, the first due engine will stage no closer than 330 feet from the dispatch address and use water from the second arriving engine.

c. Assume Command if not yet established.

d. Complete the following actions if NOT already completed or assigned to another unit.

- i. **Immediately address evacuation needs.**
- ii. Provide a complete BIR
- iii. Provide complete and accurate 360 radio report

e. **Investigate the area/structure for obvious odors and monitor**

the environment with an appropriate gas meter.

- i. Announce incident action plan (IAP) including:
 - ii. Action being taken
 - iii. Entrance into the structure being utilized
 - iv. Location of the operation
 - v. The number of members from your crew operating in the IDLH
- f. Communicate Critical Benchmarks:
- i. Odor present
 - ii. Meter readings
 - iii. Identification of source
 - iv. Control of the source
- g. Provide updated "condition action needs" (CAN) reports.

If the first special service arrives first and initiates an investigation, the engine crew should remain at the apparatus, prepared to advance if the incident escalates.

3. Second Arriving Engine Company

a. Apparatus Positioning

- i. The second arriving engine shall take a position at the first due engine's water supply, making sure not to block out other units.

b. Water Supply Responsibilities

- i. The primary responsibility of the second engine is to ensure the continuous/adequate water supply of the first due engine.
- ii. While responding, the second engine company should acknowledge the first arriving engine company's hydrant location.
- iii. Upon positioning the apparatus, the second due engine shall be prepared to immediately complete the water supply process by attaching to a hydrant or completing a split layout.

- c. The crew should report to and stage at the location of the first engine (unit) or another location no closer than 330 feet from the dispatched address.

- d. Remain at the assigned location unless given explicit direction from the Incident Commander

The primary mission of the second due engine is to ensure that if the incident escalates, they can quickly deploy a hand line to provide protection for the investigating crew and knockdown fire conditions.

4. First Due Truck/Special Service Company

a. Apparatus Positioning

- i. The first arriving truck or special services shall, when possible,

approach the scene from **the opposite direction** of the first due engine and stage the unit no closer than 330 feet from the dispatched address. The unit should block the road and deny vehicle and pedestrian traffic access.

- b. The special service crew should stage with their unit, while the first engine initiates an investigation.
- c. Provide additional evacuation and search as directed by the IC.
- d. Provide additional monitoring as directed by the IC.
- e. Provide utility control and ventilation at the direction of the IC.

5. Medic Unit

a. Apparatus Positioning

The medic unit shall take a position out of the way so as not to block access for incoming units but should remain in a position for rapid transport if needed. The staging location should be no less than 330 feet from the dispatched address.

- b. The primary function of the medic unit is to provide immediate medical care for injured civilians and/or firefighters.
- c. The crew should not enter a hot zone without proper PPE. If possible, crews should bring patients to the medic crew waiting in a safe area.

6. First Due Command Officer (If responding)

Upon dispatch, the first due Command Officer shall be the overall IC and shall:

- a. Coordinate all communications with the ECC
- b. Manage all resources adding onto the incident or being replaced
- c. Ensure proper staging distances
- d. Approve any changes in arrival order
- e. Ensure complete and accurate BIR and 360 radio reports
- f. While enroute maintain situational awareness of:
 - i. Incident action plan and Entry Reports
 - ii. Operating position of all companies operating in the IDLH

If improper or unclear strategies and/or tactics are being communicated and/or applied by the initial IC, the first due Command Officer should intervene while enroute. Command officers should not assume Command while enroute but should directly recommend key prompts or actions to the initial IC.

- g. Upon arrival:
 - i. Establish a strategic, fixed command post, and

- announce the location
- ii. Assume/establish Command
- iii. Use tactical worksheet/command board
- iv. Verify accountability
- v. Set incident priorities
- vi. Assign resources as needed
- vii. Request additional resources as needed
- viii. Provide regular incident progress reports as required

C: Minimum PPE

1. All crews conducting investigations will don full PPE to include Self Contained Breathing Apparatus. When an IDLH exists or a combustible gas monitor indicates rising or potentially explosive environments, crews will operate on air.

IV. SUMMARY

Gas leaks are essentially Hazardous Materials incidents. The number one priority is to protect life by isolating the incident, denying entry, and evacuating the area. Incident commanders shall make all attempts to limit the number of personnel working/investigating in the potential IDLH. Typically, one crew will conduct the investigation, all others shall stage with their apparatus.

Apparatus that was mistakenly positioned in front of the reported address will immediately be repositioned to 330 feet away. Engine companies will not over commit by laying a supply line to an area closer than 330 feet. Staging apparatus at a water supply will be the preferred action. One crew will perform the investigation in **full PPE with SCBA**, all other crews will stage with their apparatus. Only when deemed safe will additional crews be committed to monitoring exposures and performing other activities as needed.

V. RESCISION

This Standard Operating Procedure rescinds all directives regarding Inside Gas Leaks or similar content previously issued for personnel of the Carroll County Department of Fire & EMS.

VI. ATTACHMENTS

Inside Gas Leak Q Card



CARROLL COUNTY FIRE & EMS

Standard Operating Procedure

Inside Gas Emergencies

Residential & Commercial

- 2 Engines
- 1 TK/TW/SQ
- Medic Unit

Non Hydrant

- Incident Commander may consider the need to add a tanker

Approach Gas Leaks as a HazMat Incident

Ver. 1.2.2025

1st Arriving Engine

- Secure a Water Source
- Stage Apparatus a minimum of **330 feet** away from the building – announce location so 2nd Engine can stage with 1st Engine
- Deny entry to vehicle and pedestrian traffic
- OIC - size up, BIR, Establish Tactical Command
- Gather information and Initiate investigation

Chief - I/C

- Ensure correct unit positioning - make corrections
- Limit to one crew making entry on initial investigation

Medic Unit

- Stage **330 feet** away from the building – announce location.
- PPE required for Hot Zone
- Patient care conducted in the cold zone

2nd Arriving Engine

- Stage with 1st Engine and prepare to ensure a water supply.
- Assume the “2 in 2 out” function
- Assist the 1st Due Engine as directed by Command
- Deny entry to vehicle and pedestrian traffic

Truck / Tower / Squad

- Approach scene from opposite direction of 1st Engine
- Stage Apparatus a minimum of **330 feet** away from the building
- Deny entry to vehicle and pedestrian traffic
- Be prepared to deploy at direction of Command