

# NATURAL GAS EMERGENCY PROCEDURES AND ACCIDENT PREVENTION

## Fire and Life-Safety Group (FLS)

### *I. EMERGENCY PROCEDURES*

The emergency procedures for natural gas emergencies are similar to that for fire emergencies. All incidents will use the Incident Command System. The University of Colorado Police Department (UCPD) officer at the scene will be in charge until the arrival of the Boulder Fire Department (BFD). Upon their arrival, the BFD commanding officer will be in charge of the emergency and the building.

### *II. NATURAL GAS LEAK/SMELL INSIDE BUILDINGS*

#### GENERAL GUIDELINES

If you smell natural gas:

- Do not turn electrical switches on or off.
- Do not use a phone or a cellular phone inside the building.
- Do not use any potential ignition sources or open flames.
- Use common sense and never take risks that may endanger you or others, do not return to the building unless advised to do so by the BFD or UCPD.
- If it is possible, open the doors and windows, to ventilate the building. However, do not spend additional time opening doors or windows if there is an imminent danger of explosion or fire that would jeopardize your safety.
- Always leave the building quickly by the fastest possible route.
- Follow the emergency procedures listed below.

#### EMERGENCY PROCEDURES

When you suspect or detect a natural gas leak or observe a flammable material spill, follow the emergency procedures listed below regardless of intensity of odor or size of spill.

### IF YOU DETECT OR SUSPECT A NATURAL GAS LEAK

1. Leave the area.
2. Sound the fire alarm. (NOTE: Because of its low odor threshold, natural gas is sensed far in advance of high concentrations and pulling the fire alarm will not add to the fire risk already present by static electricity and electrical and mechanical equipment in the building.)
3. Immediately evacuate the building via the shortest and safest exit route. If possible to accomplish within seconds, leave windows and exterior doors open to ventilate the area.
4. Do not use elevators; always use stairs.
5. Go to a safe area or to a pre-assigned exterior assembly area for your building.
6. Call 9-1-1 from the nearest phone in safe area.
7. Await emergency response personnel at safe location.
8. If you know or suspect that someone is missing or trapped, contact the emergency personnel outside the building.
9. If you are trapped during a gas release/emergency, close all doors between you and the gas leak. Stuff the cracks around the doors. Open windows or other exterior openings for fresh air and ventilation. Wait at a safe window and signal/call for help. If there is a phone in the room, call 9-1-1 and tell them exactly where you are.

### SERVICE CENTER RESPONSIBILITIES

- If there is a possible life safety issue, e.g., gas odor, Service Center is to promptly transfer the call to 9-1-1 or have the caller hang up and immediately call 9-1-1 if the transfer cannot be completed normally. Interviewing the caller to determine more in-depth information would only delay the emergency response. It is appropriate for the Service Center dispatcher to verify with UCPD

dispatch that they received the transferred 9-1-1 call. UCPD dispatchers are trained to interview individuals to determine the relative threat to life safety, and to initiate a notification to appropriate agencies who will then proceed promptly to the scene to assess the situation.

- Also, Service Center is to notify all personnel in all tunnels and in the mechanical rooms of the building where the gas smell has been reported.
- Service Center is to contact FM plumbers as soon as possible to avoid delays. Upon coordination with UCPD dispatchers, the Service Center is to notify all Facilities Management (FM) based on the call-out list.

#### OTHER AGENCIES' RESPONSIBILITIES

- UCPD and BFD will set up an incident command post, and determine what actions are necessary to protect the life safety of responders, building occupants, and all other personnel adjacent to the facility.
- UCPD dispatchers will notify the responders including FM Service Center, BFD, Xcel Energy, and Housing & Dining Services (HDS) personnel that are on the call-out list and all other emergency responders based on the call-out list. UCPD will direct the Service Center to notify FM responders as soon as the life safety responder protocols are initiated.
- FM, HDS and/or BFD personnel should close the main gas valve to the building when so directed by the incident commander on the scene. (Note: Xcel Energy has a relatively timely response during week days from approximately 7:00 am to 7:00 pm. However, outside these hours, the Xcel Energy response time may be 1-2 hours.)

#### ***III. NATURAL GAS LEAK/SMELL OUTSIDE BUILDINGS***

If gas odor is sensed in any building, then the procedures summarized under section II, above, apply. If gas odor is strictly limited to areas outside buildings, Service Center is still required to transfer the caller to 9-1-1 and notify all personnel in tunnels. UCPD dispatchers will notify the responders including FM Service Center, BFD, Xcel Energy, and HDS personnel that are on the call-out list and all other emergency responders based on the call-out list. UCPD will direct the Service Center to notify FM responders as soon as the life safety responder protocols are initiated.

#### GENERAL GUIDELINES

If gas odor is sensed in any building, then the procedures summarized under section II, above, apply. Otherwise, move to an area outside of the natural gas odor area, call 9-1-1 and notify them of the situation. Do not use any potential ignition sources or open flames, use common sense and never take risks that may endanger you or others.

### EMERGENCY PROCEDURES

Move away from the area suspected of gas leak and follow the directions given by the UCPD and BFD. If you are the person who discovered the gas smell, call 9-1-1 and follow the directions given by the 9-1-1 operator.

### SERVICE CENTER RESPONSIBILITIES

- If there is a possible life safety issue, e.g., gas odor, Service Center is to promptly transfer the call to 9-1-1 or have the caller hang up and immediately call 9-1-1 if the transfer cannot be completed normally. Interviewing the caller to determine more in-depth information would only delay the emergency response. It is appropriate for the Service Center dispatcher to verify with UCPD dispatch that they received the transferred 9-1-1 call. UCPD dispatchers are trained to interview individuals to determine the relative threat to life safety, and to initiate a notification to appropriate agencies who will then proceed promptly to the scene to assess the situation.
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### OTHER AGENCIES' RESPONSIBILITIES

- UCPD and BFD will set up an incident command post, and determine what actions are necessary to protect the life safety of responders, building occupants, and all other personnel adjacent to the facility.
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#### ***IV. NATURAL GAS ACCIDENT PREVENTION***

The following safety guidelines are to be considered.

##### **Safety Guidelines for Occupants**

- A major part of any prevention program is good housekeeping practices.
- Keep all combustible materials away from the flame of your gas appliances.
- Follow manufacturer's instructions in the care and operation of gas-fired appliances.
- Don't block furnace room air vents. Gas appliances require air to burn fuel completely and operate efficiently. A yellowish flame can signal improper operation.
- If the pilot flame on a gas appliance goes out, shut off the gas supply at the appliance's valve and allow time for accumulated gas to escape before attempting to re-light pilot flame.
- Have qualified personnel handle natural gas-related repair and installation jobs. See CU Standards for Licenses and procedures required.

##### **Safety Rules for FM, Contractor and Others Conducting Natural Gas Related Work**

- Contact the Utility Notification Center of Colorado (UNCC) at 1-800-922-1987 prior to any digging.
- During gas leak/smell inside buildings, if possible, cut off all electric circuits at a remote source to eliminate operation of automatic switches in the dangerous area. Safety flashlights designed for use in hazardous atmospheres are recommended for use in such emergencies.

- Investigate other buildings in the immediate area to determine the presence of escaping gas therein.
- Follow manufacturer's instructions in the care and operation of gas-fired appliances.
- Have qualified personnel handle natural gas-related repair and installation jobs. See CU standards for Licenses and procedures required.
- Make sure the flues of automatically controlled appliances are corrosion-free, securely attached, and correctly vented.
- If the pilot flame on a gas appliance goes out, shut off the gas supply at the appliance's valve and allow time for accumulated gas to escape.
- When the gas supply is to be turned off, it is the duty of the qualified agency to notify all affected users.
- Before the gas is turned off to the premises or section of piping to be serviced, all equipment shutoff valves are to be turned off. Exception: In cases of emergency, this requirement does not apply.
- A leak test is to be performed to determine that all equipment is turned off in the piping section affected. Exception: In cases of emergency, this requirement does not apply.
- Shut off the supply of gas to the areas involved. Lock-out/tag-out any closed valves where necessary.
- All gas piping installations, equipment installations, and modifications to existing systems are to be performed with the gas turned off and the piping purged in accordance with the National Fuel Gas Code (NFGC), NFPA-54 and the International Fuel Gas Code (IFGC). Hot taps are not allowed on campus. This practice is acceptable when approved by plumbing code official and only for large gas mains in large open fields; it is not allowed for any gas piping inside a building.
- When interruptions in work occur while repairs or alterations are being made to an existing piping system, the system is to be left in a safe condition.
- Where work is being performed on piping that contains or has contained gas, the following is to apply:
  1. Provisions for electrical continuity are to be made before alterations are made in a metallic piping system.

2. Smoking, open flames, lanterns, welding, or other sources of ignition are not to be permitted.
3. A metallic electrical bond is to be installed around the location of cuts in metallic gas pipes made by other than cutting torches. If cutting torches, welding, or other sources of ignition are unavoidable, it must be determined that all sources of gas or gas-air mixtures have been secured and that all flammable gas or liquids have been cleared from the area. Piping is to be purged as required in NFGC/IFGC before welding or cutting with a torch is attempted.
4. Artificial illumination is to be restricted to listed safety-type flashlights and safety lamps. Electric switches are not to be operated, on or off.
  - The piping system is to withstand the test pressure specified without showing any evidence of leak or other defects. Any reduction of test pressures as indicated by pressure gauges is to be deemed to indicate the presence of a leak unless such reduction can be readily attributed to some other cause.
  - The leak is to be located by means of an approved gas detector, a non-corrosive leak detection fluid, or other approved leak detection methods. Matches, candles, open flames, or other methods that provide a source of ignition are not to be used. Where leak or other defects are located, the affected portion of the piping system is to be repaired or replaced and re-tested; see NFGC/IFGC.
  - Leak testing of new installations and remodels are to be in strict accordance with the requirements of the NFGC/IFGC.
  - When gas piping is to be opened for servicing, addition, or modification, the section to be worked on is to be turned off from the gas supply at the nearest convenient point and the line pressure vented to the outdoors or to ventilated areas of sufficient size to prevent accumulation of flammable mixtures. If the pipe section exceeds the lengths shown in NFGC/IFGC, the remaining gas is to be displaced with an inert gas.
  - When piping full of air is placed in operation, the air in the piping is to be displaced with fuel gas, provided the piping does not exceed the length shown in NFGC/IFGC. The air can be safely displaced with fuel gas provided that a moderately rapid and continuous flow of fuel gas is introduced at one end of the line and air is vented out at the other end. The fuel gas flow shall be continued without interruption until the vented gas is free of air. The point of discharge is not to be left unattended during purging. The vent is then to be closed. If the piping exceeds the lengths shown in NFGC/IFGC, the air in the piping is to be displaced with an inert gas, and the inert gas is then to be displaced with fuel gas.

- The open end of piping systems being purged are not to discharge into confined spaces or areas where there are sources of ignition unless precautions are taken to perform this operation in a safe manner by ventilation of the space, control of purging rate, and elimination of all hazardous conditions.