

**Drakesboro Gas  
EMERGENCY PROCEDURES**

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The Drakesboro Gas Emergency Procedures Updated February 2019

This plan has been prepared to provide critical information in the event of an emergency. The pipeline safety requirements for an Emergency Plan are contained in the U. S. Department of Transportation, Pipeline Safety Regulations, Code of Federal Regulations 49, 192.615.

It is imperative that those who will have the responsibility of handling an emergency situation be familiar with the contents of this manual. This manual is to be used as an emergency format and does not contain operational data.

**EMERGENCY DEFINITION**

No emergency plan can anticipate all the conditions to be encountered in an emergency situation. There is no substitute for clear and knowledgeable judgement by the individual(s) involved in the emergency. In any emergency, the public well-being shall take precedence.

QUESTION: What is an emergency condition?

ANSWER: An emergency condition exists when qualified representatives have determined and initiate procedures utilizing manpower, equipment, and supplies for the sole purpose of protecting the public from existing and potential hazards associated with natural gas and all facilities thereof:

**EMERGENCY PROCEDURES**

These procedures are intended to assist in dealing with emergencies involving natural gas customers. The individual representative first on the scene shall assess the situation and obtain all pertinent information in order to determine if a hazardous condition exists.

Gas emergencies are defined as:

- 1) The continued safe operation of a major segment of the distribution system is endangered, or;
- 2) a gas leak (ignited or not) is of such magnitude that major roads or highways must be closed, or;
- 3) a failure or malfunction of the natural gas system exists that:
  - Affects a large number of customers or imposes a danger to life and health of such magnitude that mobilization of all available emergency action forces is required, or;
  - Necessitates immediate action to prevent or lessen property damage, or save lives.

For emergencies requiring reports to Washington or the State of Kentucky, such reports shall be handled in accordance with Section: 108 of the Drakesboro Gas Operating & Maintenance Manual.

Hazards may include, but not be limited to the following:

- Under-pressurized system
- Over-pressurized system
- Accidental release of natural gas
- Fire or explosion (involving a pipeline facility)
- Gas leaks
- Damaged Pipeline sections

Conditions that may create an emergency situation:

- Natural disasters:
  - a. Floods
  - b. Tornado
  - c. Hurricane
  - d. Earthquake/settling, heaving and loading
  - e. Freezing associated with heaving
  - f. Civil disturbance



### **Key actions involving a natural disaster:**

- A. Notify the Fire Department and advise them of the situation at the disaster site.
- B. Notify the Police Department and advise as to the areas affected and the help needed from law enforcement.
- C. Call for ambulances if they are needed.
- D. Notify emergency response agencies (Civil Defense, Red Cross, Emergency Management Agency as well as Mutual Assistance Members, etc.) See the Operating and Maintenance Procedures Manual for detailed procedures/responses:
  - 1. Section 108.2 Responding to Gas Leak reports
  - 2. Section 120 Emergency Procedures
  - 3. Section 121 General
  - 4. Section 124 Transmission/Distribution System Failure or Emergency
  - 5. Other Mission Responsibilities
- E. If gas is escaping, extinguish all open flames, prohibit access to the area with potential ignition sources and class the area as a "HOT ZONE."
- F. Check the surrounding area to ensure venting or migrating gas does not enter surrounding structures.
- G. Notify supervision and responding personnel as to the steps needed for corrective action at the disaster site. The responding personnel shall remain in charge until relieved of that responsibility. Actions needed until relieved of responsibility:
  - a. Set up communications with Emergency Response agencies.
  - b. Coordinate the emergency action at the site.
  - c. Secure shut down of all isolation valves in the affected area. Communicate corrective action to all responding personnel.
- H. If access to the affected area is difficult or time intensive, the responding personnel shall seek out key isolation valves for the area and shut down gas to the area. Supervision should as well be notified so as to lower the pressure in the area prior to shut down of key valves. This action will reduce the time it takes for the system pressure to blow down (minimize purging and/or burning of gas in the area).

### **EMERGENCY EQUIPMENT/LOCATION**

Equipment and supplies will be at the disposal of all responding emergency personnel. There shall one location for the purpose of equipment and supply usage in an emergency situation. That location shall be the Drakesboro Maintenance Shop. Emergency equipment shall be kept on the services trucks at all times to address emergency concerns. All operating personnel shall know the location and proper use of all emergency equipment. Periodic checks of emergency equipment should be performed and recorded. These inspections should be kept on file (hard copy or database).

### **EMERGENCY EQUIPMENT TO BE UTILIZED**

- ' Gas Maps
- ' Pipe Wrenches
- ' Repair Material (clamps/couplings/valves/meters)



- CGI
- Personal Protective Equipment
- Critical Valve Wrenches
- Fire Extinguisher
- Pipe
- Small tools
- Odorator

#### **KEYS**

Gas Personnel are issued keys to all Drakesboro Gas locks in the system. All responding personnel shall be equipped to cut any lock not operational. Keys to the system shall be kept in the Maintenance Shop.

#### **VALVE OPERATION**

The operation of any valve in the distribution system should be carefully weighed before shut-off or turning-on any valve. The effects of operating a valve on the system should be based on the potential hazard to the public. All such operations shall be cleared through the Gas Operator. Only authorized personnel shall operate gas valves on the gas system. All other individuals such as contractors, fire department, police department or any other officials are not authorized to operate or instruct others to operate a gas valve on any gas distribution system.

#### **LOCATION OF VALVES**

System maps and schematics showing all gas distribution valves in the system shall be kept in the Gas Operators office. All authorized personnel shall be familiar with the location of the valves in the system (primary and secondary valve locations).

#### **EMERGENCY MANPOWER, ASSISTANCE/AGENCIES**

Additional manpower, equipment and supplies may be obtained through the Emergency Management Agency/Red

Cross/Civil Defense and neighboring Gas Operators.

Other agencies may be called upon to assist in the event of a prolonged emergency:

- Neighboring Natural Gas System
- Emergency Management Agency
- American Red Cross
- Civil Defense
- FEMA (Federal Emergency Management Agency) (Emergency Response Group)

#### **RESPONDING TO REPORTED GAS LEAK GAS LEAK INSIDE/MAKE**

##### **SAFE**

Log time call received and time of arrival.

Check for gas when you enter the building/structure by smelling the atmosphere and by sampling the open atmosphere by using a Combustible Gas Indicator/CGI.

If gas in open atmosphere has registered on the CGI tester or if in your judgment, it is necessary to evacuate the building, instruct all occupants to leave building and instruct them not to operate switches, strike matches, or smoke as they leave. *NOTE:* Advise occupants to move away from the building at least past a second structure but not less than 200 feet away.

Terminate all open flames.

Ventilate the structure as you exit (open doors, windows in the existing area.)

Terminate the gas to the building structure by cutting the meter off as quickly as possible.

Barhole and test along the building foundation wall to the gas service and out to the gas main. If the service is leaking causing gas to enter the building from underground, call a crew to cut off the service valve or cut it at the tapping tee. Be sure to stand by until assistance arrives. Keep on lookers away until assistance arrives.

If leak is inside, after building has aired out and you have rechecked and determined it is safe to return, you may let the occupants return to the building.

Make visual inspection of fuel lines and equipment to ensure safe operation. Cut off equipment valves, both pilot and main burner and test fuel lines for leaks by performing a decay test (tightness test, close-in, pressure test, etc.).

- If gas is escaping so fast it is unsafe to leave on while checking for the leak, cut off meter and use air pressure to find and repair leakage on the fuel line.

**Note: See Exact Procedures For Troubleshooting Odor Calls.**

#### **EXACT PROCEDURES FOR TROUBLESHOOTING ODOR CALLS**



- 1) A. A service department representative will respond upon notification.  
B. Document the date and time of notification.  
C. Document the date and time of arrival on the scene. D. Document the time of departure.
- 2) Use your own judgment when to run emergency traffic (customer's description of the situation, heavy traffic, etc.).
- 3) Indoor odors take priority over broken lines.
- 4) Evaluate the scene as you approach. (Observe sight, smell, environment, etc.).
- 5) Do not park in front of the odor address; check for leak signs as you approach the address.
- 6) Turn on and zero CGI and carbon monoxide detector in clean air.
- 7) Place your thumb over the end of the CGI for approximately 5 seconds and make sure it shows pump flow blocked.
- 8) Check all around the door for gas or carbon monoxide, especially check high if natural gas and low if propane.
- 9) **DO NOT RING DOOR BELL - ALWAYS KNOCK.** If no one is there, the meter/tank must be turned off. Check the exterior of the building for gas (see outdoor odor sheet). The building cannot be entered without the customer, maintenance, office worker, etc. is on the scene. The gas cannot be turned back on until the inside of the building is checked. (Zero detection)
- 10) If less than 1 % natural or less than .5% propane is found inside, see step 18. If carbon monoxide is found, see carbon monoxide sheet.
- 11) If 1 % natural or .5% propane, or higher, is found, evacuate the people immediately.
- 12) Leave the door you exit by open to help with ventilation. (Do not open more than one opening.)
- 13) Turn the meter /tank off as you evacuate.
- 14) Call for added help. (You will need it.)
- 15) Take the evacuated people approximately 200 feet away. (Advise concerns of traffic cautions to all)
- 16) Evacuate buildings next to the odor address. Check for gas with CGI as you evacuate. Also turn off meter.
- 17) Check outside for gas at the odor address (see outdoor odor sheet) and periodically monitor reading at the door until it has dropped below 1% natural or .5% propane. The building may be checked out at this time.
- 18) Turn off the valves at each appliance.
- 19) Turn the meter/tank back on if it is off and listen for heavy usage. Clock the meter. The ¼ or ½ foot hand must be in the upswing position to clock it. If no heavy usage is found, the piping and appliances may be checked.
- 20) Always check piping with the electronic gas detector before using soap. The soap will cause the EGD to sound an alarm.
- 21) When checking, consider: (Marked areas checked) baseboard, ceilings, joints, drains, gas appliances, gas plumbing, and outside exterior of building.
- 22) If the leak is found and can be stopped by tightening a union or flare fitting, etc., follow company policy as to repairs. When repairs are made, then soap test.
- 23) **THE LEAK MUST BE STOPPED.** If it cannot be stopped, it must be valved off and the valve **RED TAGGED.**
- 24) If the valve is accessible by the public (in a rental cabin, motel room, etc., the line must be disconnected and if possible plugged or capped.
- 25) If the leak cannot be valved off, the meter **MUST** be locked off or the tank regulator pulled.
- 26) A pressure test must be seen and documented by the representative of the gas department before the gas service can be turned back on.
- 27) If the leak cannot be found indoor or outdoor, notify the Gas Operator.





- 28) A. If nothing is found, be sure equipment has been fired and checked.  
B. ALWAYS fill out a report regardless of what is or is not found. Always turn in report to the service department. GET THE ADDRESS AND METER NUMUER OF ANY METER TURNED OFF.

**EGD read CO (Carbon Monoxide) in PPM (parts per million)**

- If call comes in as a CO (Carbon Monoxide) call, also check for gas indoor and outdoor around the exterior of the building.
- Check around the gas appliance while it is fired.
- Check the heat/air registers.
- Fire all the equipment at the same time if possible.

1) 0 - 9 PPM: Acceptable levels.

If source can be found, write on odor report indicating levels and the appliance. Also, note on report that levels are acceptable. Fill out report regardless of level found.

2) 10 – 35 PPM

A. Acceptable in restaurants, factories, garages, etc., where exposure is only for 8 hour periods. Fill out Odor Report. If source can be found, indicate which appliance on the report and that levels are acceptable. If problem can be corrected, do so and indicate correction on report.

B. Unacceptable in homes, rental cabins, motel rooms, etc. Attempt to find source of problem. If source is found and can be corrected, do so. If the problem cannot be corrected, the appliance must be valved off and red tagged. If the valve is accessible by the public (rental cabin, motel room, etc.) the line must be disconnected and the valve capped or plugged. Fill out Odor Report listing the levels and the appliance found to be the source.

C. If the source cannot be found, contact the service department. List the levels found on the Odor Report Form.

3) 36 – 100 PPM (UNACCEPTABLE UNDER ANY CONDITIONS)

A. If in a home, cabin, motel room, etc., suggest occupants evacuate room or building. Ventilate room or building and attempt to find source of problem. Source must be corrected or stopped. If not corrected, the appliance must be valved off and red tagged. If valve is accessible to the public (in motel room, rental cabin, etc.), the line must be disconnected and the valve capped or plugged. If the source cannot be found, contact the service department.

B. If in a business, ventilate the room or building. Attempt to find the source of the problem. Correct or stop the problem. If problem is found, valve off appliance and red tag appliance. If problem cannot be found within 15 minutes, call service department.

4) 101 – 200 PPM

A. Call service department and evacuate room or building. Do NOT stay in room or building with a reading above 100PPM for more than a couple of minutes without an air pack. Ventilate room or building if possible. If unable to ventilate, call fire department for help. If occupants refuse to evacuate, contact fire department. EVACUATE IMMEDIATELY!

5) Above 200 PPM

EVACUATE IMMEDIATELY! Call personnel in order to the Emergency Call List. Shut gas off outside. Call fire department. Attempt to ventilate room or building. DO NOT enter structure without air pack (SCBA) until level drops below 100 PPM. (Recommended level of evacuation is 50 PPM and greater.)

6) Above 11,500 PPM is nearing the LEL of CO. Do not enter. (Highly explosive.)

Carbon Monoxide is explosive and deadly, death may occur within 3 minutes at or above this level. Levels detected this high shall require the Fire Department being alerted to investigate possible victims located within the enclosure. AT NO TIME SHALL AN EMPLOYEE ENTER THE ENCLOSURE WITHOUT REDUCING THE LEVELS INSIDE THE ENCLOSURE. CUT THE METER OFF TO ELIMINATE THE POSSIBLE CREATION OF THE CARBON MONOXIDE THROUGH GAS FIRED EQUIPMENT!!!!!!!!!!!!!!

**LEAK OUTSIDE BUILDING**

1. Log time call received and time of arrival.
2. Assess the danger to the public in surrounding buildings (occupants and property).
3. Extinguish all open flames. No smoking.
4. If necessary, notify fire and police and obtain their assistance.



5. Block the street if the magnitude of the leak warrants. NOTE: If a major thoroughfare has been blocked off and traffic re-routed, notification shall be made to Washington.
6. Notify Supervision or other responsible persons.
7. Bar hole next to the foundation of the building and along the service line out to the gas main.
8. Check neighboring buildings for gas.
9. Implement Check List for major emergency.
10. Repair leak.
11. If the structure is safe, occupants may be returned to the structure.

NOTE: If you arrive on a leak call and cannot detect gas or it seems to be coming and go in the air, it is advisable to check for faulty appliances which may be in other buildings or on the roof allowing atmospheric release of natural gas to your location. At any time you need assistance, call for assistance from other qualified personnel.

### **LEAK OUTSIDE ON GAS METER**

1. Log time call received and time of arrival.
2. Upon arrival, check to see if gas is venting freely to the atmosphere and of no danger to life, property or personnel.
3. If gas is detected inside a building (Follow procedures established in the Drakesboro Gas Operations & Maintenance Manual, Section 108.22, and also in the document identified as "Gas Leaks Inside" and "Natural Gas Leak Response Procedures").
  - A. Caution occupants not to operate switches or smoke and evacuate the building being sure people are kept a safe distance away;
  - B. Shut off gas meter or service valve;
  - C. Ventilate building by opening doors and windows.
4. If gas is not entering the building, check for gas leak and repair. Call for assistance as needed.
5. Barhole service and main whenever you are checking for leakage. If leaking, call for a crew and stand by until the crew arrives.
6. After the repairs have been made, restore gas pressure to the meter by using an approved pressure testing procedure if the meter or service had been cut off. If the building has been evacuated, allow people to re-enter when it has been made safe.

### **GAS OUTAGE/LOSS OF GAS PRESSURE**

An interruption to a gas supply line could be due to: freezing of the regulators, or regulator vent lines, or a break in the line, sabotage or supplier cut off. Call your supplier (Transmission Company.) Locate leak and inform supplier of the location of leak, if possible. Close appropriate valve or valves in your system to isolate the break (if necessary.) Implement Check List for major emergency.

1. Determine as soon as possible how many areas of the plant are affected.
2. Call for assistance as needed.
3. It is imperative that all affected buildings be cut off at the gas riser valve or service valve before pressure can be restored.
4. Any gas meter that cannot be cut off by standard means must be dug up at the service valve or the service tee and cut off.
5. When all services are off, notify Supervision or the highest ranking personnel in charge that all service have successfully been cut off.
6. When advised to turn on and relighted, use "Restoration of Gas Service Turn On and Test Out Procedures" located in this manual.

### **RELIEF VALVE BLOWING**

1. Be sure to record the time call was received and time of arrival.
2. Make sure that gas is not entering the building and poses no danger to the public.
  - A. If you feel there is an immediate danger, then close inlet the valve to meter.
  - B. Make necessary repairs and arrangements to restore service to the equipment.
3. If there is no danger, then put a pressure gauge on the line and operate the by-pass so that pressure on the system will return to normal.
4. Call for necessary help to make repairs.
5. When repairs are made, put regulator back in service and check to make sure everything is operating properly.

NOTE: Never cut off a relief valve where a fuel line or appliances could be over-pressured. Always leave the shut-off valve ahead of the relief valve locked and in the open position.



## FIRE AND/OR EXPLOSION

Any report of an explosion or fire must be considered an emergency. Prompt arrival and assessment and evaluation of the situation dictates the procedure as all situations will probably differ. The safe resolution of each emergency will depend on the judgment and experience of trained personnel on the site.

In all instances, it must be assumed, until proven otherwise, leaking gas caused the emergency and all precautions taken to alleviate the problem and all buildings in the vicinity checked in the surrounding area.

1. Upon arrival, contact the fire, police and other officials on scene to obtain information concerning the probable cause, origin and limits of the fire or explosion.
2. Be prepared to shut off the gas service to the damaged building(s) by cutting the meter off or closing the service valve. If neither is available, have the service cut at the tap. If is necessary to operate a main line valve, clearance must be obtained from the Gas System Operator.
3. Check to see if gas is in any of the nearby buildings by using a Combustible Gas Indicator and sense of smell. If a gas leak is detected, use proper leak procedures as outlined.
4. Barhole service and main around the affected area to see if there is any leakage.
5. Call for help if needed.
6. If minor damage is done, disconnect all damaged appliances or piping and test fuel lines with a pressure test before turning on and checking the pressure on the line.

*NOTE: If the fire is at an appliance, shut off the gas at the appliance valve if possible. If it is not possible to shut the gas off at the appliance valve, then shut off the gas at the meter or high pressure wing cock. Isolate the hazard.*

## RESTORATION OF GAS SERVICE, TURN ON AND TEST OUT

### TURN ON AND TEST OUT

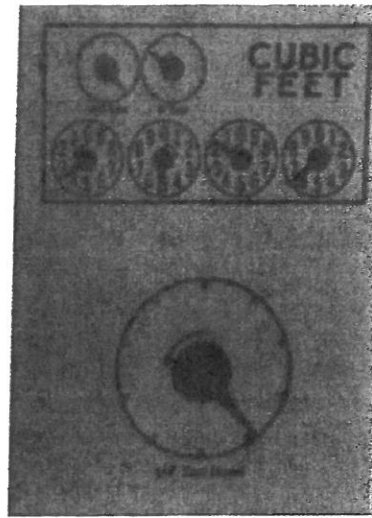
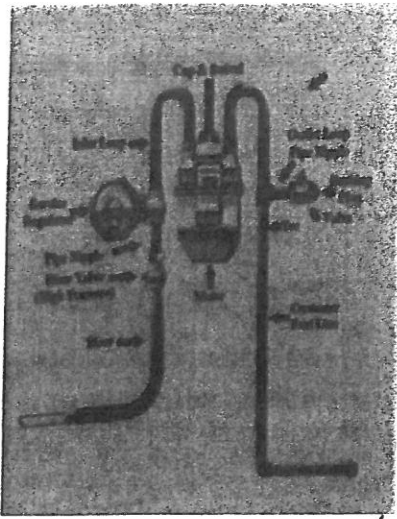
In turning gas service on to a consumer, all gas piping and meters must be purged and appliances relighted. Never turn on gas to a meter or riser valve unless you have access to all appliances on the downstream piping. The person in charge is to coordinate this operation and be responsible for the operation. A complete record of the incident, with drawings, etc., must be kept on file.

#### Turn On and Test Out Procedures:

Timing:

1. Make a visual inspection of the gas equipment to be tested. Inspect piping, vents, valves, controls and thermostatic controls. This inspection is done to ensure safe operation in the future. NOTE: Ensure no open lines exist inside the structure. NOTE: Never light new equipment. If new equipment is lighted prior to the installer cycling the gas equipment and filling out the warranty card and submitting the information to the manufacture, then that individual or company representative accepts the responsibility of the warranty.
2. Shut off all valves to the gas equipment, if there is no valve present, then cap or plug fuel line in order to perform an accurate test.
3. Loosen the outlet plug at the meter and verify the index is registering (working.) Once assured the meter is registering, replace the plug, turn the riser valve (high pressure) "ON" and observe the test. The following time intervals shall be observed for each specific test hand:
  1. ¼ foot test hand, observe for 3 minutes
  2. ½ foot test hand, observe for 5 minutes
  3. 1 foot test hand, observe for 8 minutes
  4. 2 foot test hand, observe for 12 minutes





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**NOTE:** See "Timing Tables." Timing tables will allow you to calculate how much gas is passing through the meter.

1. When performing a "Time Test" (timing the meter by the index) (use the smallest incremental test hand) always make sure the test hand is in the 7 o'clock up-swing position. This will allow for an accurate time test.
2. Always turn the gas meter valve on slowly while observing the test hand. If the test hand starts to spin rapidly, turn the valve off quickly. This indicates a severe leak on the gas line, potentially causing a hazard inside the structure. **NOTE:** If the leak cannot be traced down, the valve at the gas meter shall be closed and locked until a time when the fuel lines can be tested with air or an inert gas. This action will eliminate a hazard to the public and property.
3. If no movement is observed during the timing test, the meter can be left in the "ON" position and only if there is someone present at the structure to receive verification of the gas being turned on to all equipment. A responsible party must receive notice of the gas being turned on. No minors may ever receive this notice. If there are questions as to the age of the person receiving the gas notice, then a driver's license issued by the state of residence must be presented. **NOTE:** At this point, legally the state has recognized this person as a responsible adult. If no one is present to receive notice of the gas being turned on, then the meter valve must be turned to the off position and a lock or locking device must be placed on the valve. **NOTE:** Leave a card on the door for the responsible party to call the utility for testing and to receiving the gas to the structure.

#### **Turn On and Test Out Procedures:**

##### **Pressure Testing:**

A gauge must be placed on the downstream side of gas meter. The gauge must be a gauge design to register 1 PSIG or less. The regulator shall be set to deliver 7" of Water Column (.25 PSIG or expressed as 1/4 PSIG) to the customer. Most gauges possess dual scales such as "Inches Water Column and Ounces." If using the scale of ounces, the regulator shall be set at 4 oz. Pressure delivery to the customer. See pressures:





28" W.C. equals 1 pound per square inch gauge. A residential gas meter can only register (7" WC/.25 PSIG) delivery and record it on the meter index. Any pressure greater than .25 PSIG is not recorded on the index (super compressibility.)

Example: Price of gas metered (Base Pressure)

14.65 Atmospheric Pressure  
.25 pounds per square inch gauge (PSIG)  
 14.90 pounds per square inch absolute (PSIA)

14.90 psia (Base Pressure)

If a meter records 1000 cfh @ 7" W.C. (.25 PSIG)

$$\frac{7" \text{ WC } (.25 \text{ PSIG}) (14.90 \times 1000 \text{ cfh})}{14.90 \text{ (Base Pressure)}} = \frac{14,900}{14.90} = 1000 \text{ cfh}$$

If a meter records 1000 cfh @ 10" W.C. (.35 PSIG)

$$\frac{10" \text{ WC } (.35 \text{ PSIG}) (15.00 \times 1000 \text{ cfh})}{14.90 \text{ (Base Pressure)}} = \frac{15,000}{14.90} = 1006.7 \text{ cfh}$$

Any pressure delivery over 7" WC is not recorded and never recovered. A loss to the utility.

16 Ounces equals 1 pound per square inch gauge. A regulator must be set at .25 PSIG delivery to the gas meter to accurately record the volume used. If the service tech is using the Inches Water Column scale, then 7" WC will be .25 PSIG. If using Ounces scale, then 4 oz. will be .25 PSIG. The conversion factor from inches to ounces and vice-versa is (1.75)

$$4 \text{ oz.} \times 1.75 = 7" \text{ WC}$$

$$7" \text{ WC} / 1.75 = 4 \text{ oz.}$$

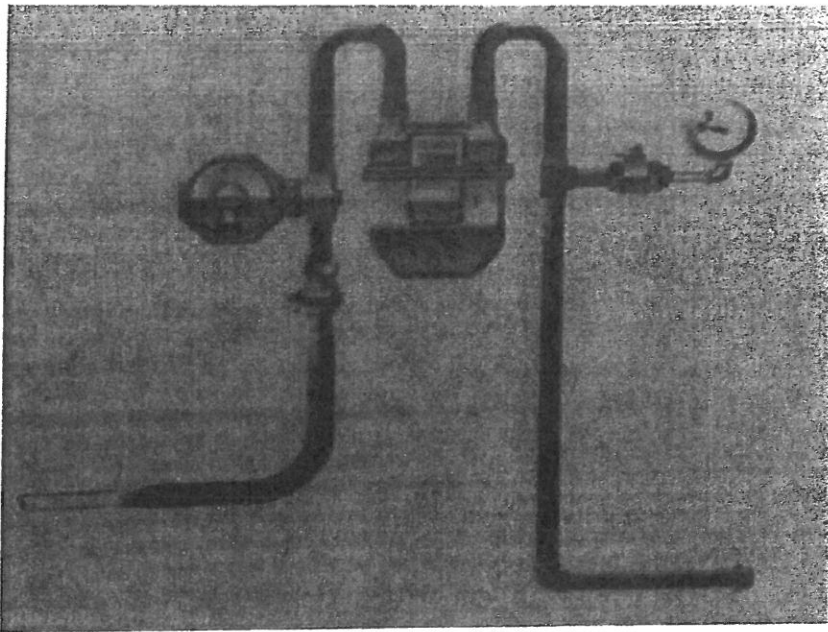
2. With the gauge placed on the downstream side of the gas meter. After checking to ensure all the piping (customer's fuel line) is connected to the gas equipment and the valves at the gas equipment are in the "OFF" position, then cut the high-pressure riser valve off. At this point you are testing the system for decay

of the pressure. If the pressure drops on the gauge then you have a leak on the piping system. NOTE: If you have a high-pressure riser valve that is leaking through, it will pack the nipple between the outlet side

of the high-pressure riser valve and the inlet side of the regulator with high pressure. This may mask a gas leak on the system. However, if after shutting off the high-pressure riser valve for the pressure test, you then lower the pressure in the pipe to a value less than the regulator delivery pressure and you will be executing a legal pressure drop test. Example: If we have the regulator set to deliver 7" WC and after shutting

the riser valve off, we then lower the pressure in the system to say, 5" WC, and the pressure rises back up to 7" WC, it would mean the high-pressure riser valve is bleeding through. If the pressure drops from the 5" WC to less than the 5" WC, it means there's a leak on the piping system, and if the pressure on the gauge holds steady at the 5" WC, it means the test is good and therefore accurate.





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If no leaks have been detected, the next step will be to perform proper purging procedures to expel all air from the fuel lines and provide a 100% gas rich environment in the fuel lines. If the fuel line is greater than 2 1/2" then follow **Table III from the NFPA 54 ANSI Z223.1 "Purging of Gas Piping"**.

**TABLE III**

**LENGTH OF GAS LINE REQUIRING PURGING WITH AN INERT ATMOSPHERE**

<u>Nominal Pipe Size, Inches</u>	<u>Min. Length of Piping Requiring Purging</u>
2 1/2 -3	50 feet
3-4	30 feet
4 -6	15 feet
6 -8	10 feet
8 or larger	any length

4. After safely purging the piping and the environment is safe, the relighting may take place.

**NOTE:** If the test to ensure a tight and secure fuel line is performed with a manometer (Water Column)



make sure the test is performed accurately by observing the following: **NOTE:** The manometer is a choice by the operator. A bourdon tube type gauge is acceptable.

**NOTE: If using the water column gauge, then follow the procedures below:**

1. Fill the column with water to the zero mark.
2. Make sure hoses have no cracks or holes and are tight.
3. Hook up the manometer to the fuel line.
4. Make sure the manometer is setting or resting in a level position where an accurate reading can be observed.
5. Open the gas valve on the meter slowly so as not to blow the water from the column tube.
6. Once the fuel line has pressurized to the regulator set pressure then close the gas meter valve off and observe the manometer. If the manometer shows no leak the gas representative may then perform lighting procedures

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**TIMING TABLES**

900 x Rev	¼ foot test hand	1800 x Rev	½ foot test hand
900 x .1	90 / Time = CFH	1800 x .1	180 / Time = CFH
900 x .2	180 / Time = CFH	1800 x .2	360 / Time = CFH
900 x .3	270 / Time = CFH	1800 x .3	540 / Time = CFH
900 x .4	360 / Time = CFH	1800 x .4	720 / Time = CFH
900 x 1.0	900 / Time = CFH	1800 x 1.0	1800 / Time = CFH
3600 x Rev	1-foot test hand	7200 x Rev	2-foot test hand
3600 x .1	360 / Time = CFH	7200 x .1	720 / Time = CFH
3600 x .2	720 / Time = CFH	7200 x .2	1440 / Time = CFH
3600 x .3	1080 / Time = CFH	7200 x .3	2160 / Time = CFH
3600 x .4	1440 / Time = CFH	7200 x .4	2880 / Time = CFH
3600 x 1.0	3600 / Time = CFH	7200 x 1.0	7200 / Time = CFH



**NOTE:** There are 10 increments on a test hand dial (1/4 foot or 1/2 foot) if the hand moves from one increment to the next, it has moved 1/10th (.1). Example: If you have observed the hand move (.1)(1/10th) on a 1/4 foot test hand in a 30 second time span, you would then use the table (900xRev) (1/4 foot test hand).

**90 /30 seconds = 3 cubic feet per hour movement**

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**EQUIPMENT INSPECTION AND LIGHTING**

1. Visually inspect equipment
  - A. Vent system
  - B. Wiring
  - C. Burner condition
  - D. Combustion chamber
  - E. Filter
  - F. Fan compartment doorcheck the fan & limit settings (fan on 130 degrees, fan off 110 degrees and limit should be set 175-180 degrees)
2. Turn control valve off





3. Turn thermostat to call for heat.
4. Turn control valve to "on" to check safety.
5. If safety is ok, turn control valve to pilot position and light pilot.
6. If pilot safety holds, slowly turn on control valve to ignite burners.
7. Visually check flame condition before fan comes on.
8. Check draft at diverter.
9. Visually check flame condition after fan comes on.

**E:** If a hole or crack in the combustion chamber is suspected or detected, the registers should be closed to pressurize the duct system and the burner flame observed for excess air movement inside the chamber. If a problem is indicated, the equipment will be rendered inoperative, tagged and the customer referred to a licensed contractor for a complete visual inspection of the combustion chamber.

10. Turn down thermostat setting till main burners are extinguished.
11. Turn thermostat setting up and check ignition of main burner under normal operating condition.
12. Lower thermostat setting and allow fan to cycle normally.
13. Notify customer of any repairs or maintenance required.

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### **Drakesboro Gas EMERGENCY PROCEDURES**

#### **PROCEDURES FOR FURNACE INSPECTIONS**

Listed below are samples of the different types of furnaces. Each furnace has different procedure for inspecting, lighting and adjusting.

#### **Wall Furnace**

Always make a visual inspection of a wall furnace, checking for fire hazards. Make sure the furnace is free from lint and any other combustible materials. If for any reason, you find the wall furnace unsafe disconnect, cap and plug off the fuel line to the furnace. If you are unable to disconnect the fuel line loosen the thermocouple. If the unit is a double furnace, check both sides for fire hazards and make sure that no return air for a wall furnace is drawn from bathroom or kitchen. Make sure gas is cut off to wall furnace and no odor of gas is present. Check burner ventilation and pilot for lint and other combustible materials. Check heat exchanger for cracks, burn outs and proper alignment. Always light pilot with the burner in the off position. After proving pilot is lit, turn up the thermostat to call for heat and turn on the burner valve. Observe the gas input on the burner. If in doubt, get BTU rating off name plate and time meter. Make any necessary adjustments by setting appliance regulator to the wall furnace. After a wall furnace has been burning for a couple of minutes, check at the draft hood by holding a lighted match around the entire opening of the draft diverter. When checking draft and vent on the wall furnace, make sure the top of heat exchanger



and diverter are secured properly. Do not light if the wall furnace is dirty or in need of repairs. If the wall furnace is left off, leave a list of needed repairs or services with the customer.

### **Circulator**

Always make a visual inspection of the circulator, checking for fire hazards. If for any reason you find the circulator is unsafe, disconnect. Remember to make sure the circulator is located so it will not cause a fire hazard to walls, curtains, furniture, doors when operating. Make sure that the circulator is free of lint and any other combustible materials. If the circulator is equipped with a heat exchanger, check for burn outs and cracks. If no gas odor is present, light the pilot with the burner in the off position. After proving safety, if the unit is so equipped, turn on burner and make visual check for complete combustion and proper rating. Check house pressure and check BTU by timing gas meter, set in put if necessary. Check diverter for draft with a lighted match, check vent for proper installation and rust or holes. If circulator has radiant check to make sure they are properly placed. If circulator is left off, leave a list of needed repairs or services with the customer.

### **Space Heater**

Always make a visual inspection of the space heater, checking for a fire hazard. If for any reason, you find the space heater unsafe, disconnect. Remember to make sure that it is located so that it will not cause a fire hazard to walls, curtains, furniture, or doors when operating. A space heater incorporates no venting arrangements because of its construction. The unit will discharge all combustion products through the combustion area into the room that is being heated. Check to make sure that the burner is not overrated with gas and adjust if needed. The proper adjustment is made by starting with a soft yellow tipped flame and increasing primary air until the inner cone can be distinctly seen. Always make certain primary air adjustment is secured in position and house pressure is set properly. If a space heater is left off, leave a list of needed repairs or services with the customer.

### **Forced Air Furnace**

When a furnace is in the attic make sure, the stairway or passageway to a furnace is safe and well lit. If the furnace is located in closet or furnace room, check for adequate supply of oxygen for complete combustion and ventilation. Always make a visual inspection of the furnace, checking for fire hazards. If for any reason, you find the furnace is unsafe, disconnect. Check to see if pilot light is on and burning properly. Then check to see if the furnace electric circuit is energized. Also, check the

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### **Drakesboro Gas EMERGENCY PROCEDURES**

secondary side of the transformer, disconnect one lead and use tattle lite to trace out low voltage. Never short on the secondary circuits; this might cause the heat anticipator in the thermostat to burn out. If an electric circuit is complete and safe, check for proper operation. When a gas valve is equipped with a bleed, check bleed for proper operation. When a main burner comes on check flame characteristics and ignition, make necessary adjustments. Check all protective devices on furnace for safety and to assure proper operation. Make certain the filter and the fan blower is clear and all doors put back in place. Observe heat exchanger for possible air leakage after the furnace has heated up enough to bring the fan on (you need to be watching the flames as the fan comes on, this way you will not miss a change in the flames) If the heat exchanger has a leak, the burner flame will be distorted. Check furnace vent and relief opening of the draft hood to make sure all products of combustion are going up the chimney. If a furnace is left off, leave a list of needed repairs or services with the customer.

### **Warm Air Furnace**

When a furnace is located in the basement make sure, the stairway is safe and well lit. Be careful going down



basement steps and approaching furnace. Always make a visual inspection of the furnace, checking for fire hazards. If for any reason, you find, the furnace is unsafe, disconnect. Check furnace pilot light to see if it is burning properly. If the pilot light is out and furnace is not equipped with a 100% safety, leave the furnace door open until all gas odor has dissipated. Observe condition of fire box, heat exchanger and baffles. When equipped with baffles and they are not in proper positions, rearrange them. Relight pilot and check electric circuits to the furnace. If primary circuit is energized, check secondary circuits to prove electric circuit. When furnace burner comes on, check for proper combustion and ignition of gas, then make any adjustments if needed. Check all protective devices on furnace for safety and proper operation. Since this type of furnace depends upon gravity to circulate warm air, make certain all return air ducts are unrestricted. If the furnace is equipped with filters, make sure the filters are clean. Check for proper openings for combustion air, vent and relief openings of draft hood. Remember to make sure that all products of combustion are going up the chimney. If the furnace is left off, leave a list of needed repairs or services with the customer.

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**Drakesboro Gas  
EMERGENCY PROCEDURES**

**NATURAL GAS LEAKS RESPONSE PROCEDURES**

**RECEIVE LEAK CALL FROM: Dispatcher**

**TIME RECEIVED**

**CORRECT ADDRESS**

**TIME ARRIVED**

Street Name: Road, Drive, Lane, Cove, Private Drive Map book address at the top of page indicate E & W  
Map book address on left side of page indicate N & S Ask for closest cross street or intersection  
If cannot find address, call dispatcher/control room for tap location

**NATURE OF CALL**

