Operation and Maintenance Plan

For

Master Meter Gas Distribution Systems

MASTER METER SYSTEM

A natural gas pipeline system for distributing natural gas for resale within, but not limited to, a distinct area, such as a mobile home park, housing project, or apartment complex, where the operator purchases metered gas from an outside source. The natural gas distribution pipeline system supplies the ultimate consumer who either purchases the gas directly through a meter or by other means such as by rent.

Prepared In Accordance With:

Title 49, Code of Federal Regulations, Part 192,
Transportation of Natural or Other Gas by Pipeline:
Minimum Federal Safety Standards and
Texas Gas Pipeline Safety Rules:
Title 16 Texas Administrative Codes
Chapter 8

Date:_____

Operation and Maintenance Plan
Master Meter Gas Distribution System

Name of Facility:_____

Address: _____
Street or P.O. Box *(Suite or Apt. No.)*
_____
City *County* *State* *Zip Code*
Phone Number: (___)_____
Fax Number: (___)_____
24 Emergency Number: (___)_____

Owner's Name:_____

Address: _____
Street or P.O. Box *(Suite or Apt. No.)*
_____
City *County* *State* *Zip Code*
Phone Number: (___)_____
Fax Number: (___)_____
24 Emergency Number: (___)_____

Management Company's Name:_____

Address: _____
Street or P.O. Box *(Suite or Apt. No.)*
_____
City *County* *State* *Zip Code*
Phone Number: (___)_____
Fax Number: (___)_____

Property Manager Name:_____

Address: _____
Street or P.O. Box *(Suite or Apt. No.)*
_____
City *County* *State* *Zip Code*
Phone Number: (___)_____
Fax Number: (___)_____
24 Emergency Number: (___)_____

I. DISCRIPTION OF FACILITY

The gas distribution system consists of _____feet of plastic pipe; _____feet of steel pipe, for a total of _____feet of _____pipe material from a master meter to each service.
Sub-metering is/is not installed at each service location. There are_____service lines. Normal operating pressure is _____psig. The system was installed in _____19____.
Gas is purchased from (Supplier)_____
Gas is odorized by (Supplier)_____

II. REFERENCED INFORMATION

PHMSA - Guidance Manual for Operator of Small Natural Gas System (2002):
http://phmsa.dot.gov/pipeline/guidance

Texas Railroad Commission - Gas Pipeline Safety Rules:
http://www.rrc.texas.gov/pipeline-safety/rules/

III. DEFINITIONS

Refer to 49 CFR Parts 191 and 192 for additional definitions.

ANNUALLY – means at intervals not exceeding 15 months, but at least once each calendar year.

CATHODIC (CORROSION) PROTECTION – a procedure by which underground metallic pipe is protected against deterioration (rusting and pitting). Basic theory, concepts, and practical considerations for cathodic protection are contained in Chapter III.

CUSTOMER METER – a device that measures the volume of gas transferred from an operator to the consumer.

DOWNSTREAM – any point in the direction of flow of a gas from the reference point.

EMERGENCY PLAN – written procedures for responding to emergencies on the pipeline system.

GAS OPERATOR – a gas operator may be a gas utility company, a municipality, or an individual operating a housing project, apartment complex, condominium, or a mobile home park served by a master meter. The operator is ultimately responsible for complying with the pipeline safety regulations.

HIGH-PRESSURE DISTRIBUTION SYSTEM – a distribution system in which the gas pressure in the main is higher than the pressure provided to the customer; therefore, a pressure regulator is required on each service to control pressure to the customer.

INCIDENT – an event that involves a release of natural gas from a pipeline facility that results in:

(1) A death or personal injury necessitating in-patient hospitalization; (2) Estimated property damage of $50,000 or more, including loss to the operator and others, or both, but excluding cost of gas lost; (3) Unintentional estimated gas loss of three million cubic feet or more or; (4) An event that the operator deems significant.
(*Check with your local State authorities for additional requirements*).

LOW-PRESSURE DISTRIBUTION SYSTEM – a distribution system in which the gas pressure in the main is substantially the same as the pressure provided to the customer; normally a pressure regulator is not required on individual service lines.

MAIN – a natural gas distribution pipeline that serves as a common source of supply for more than one service line.

MASTER METER SYSTEM – a natural gas pipeline system for distributing natural gas for resale within, but not limited to, a distinct area, such as a mobile home park, housing project, or apartment complex, where the operator purchases metered gas from an outside source. The natural gas distribution pipeline system supplies the ultimate consumer who either purchases the gas directly through a meter or by other means such as by rent.

MAXIMUM ALLOWABLE OPERATING PRESSURE (MAOP) – the maximum pressure at which a pipeline may be operated in compliance with the gas pipeline safety regulations. It is established by design, past operating history, pressure testing, and pressure ratings of components.

NATURAL GAS – a non-toxic, colorless fuel, about one-third lighter than air. Natural gas burns only when mixed with air in certain proportions and ignited by a source of ignition (spark or flame) (Figure IV-4). Natural gas in its natural state may not have an odor.

OPERATING AND MAINTENANCE PLAN – written procedures for operations and maintenance on natural gas pipeline systems.

OVERPRESSURE PROTECTION EQUIPMENT – equipment installed to protect and prevent pressure in a system from exceeding the maximum allowable operating pressure (MAOP).

PIPELINE – all facilities through which gas moves in transportation. This includes pipes, valves, and other items attached to the pipe, meter stations, regulator stations, delivery stations, holders, and fabricated assemblies.

PRESSURE REGULATING/RELIEF STATION – a device to automatically reduce and control the gas pressure in a pipeline downstream from a higher pressure source of natural gas. It includes any enclosures, relief devices, ventilating equipment, and any piping and auxiliary equipment, such as valves, regulators, control instruments, or control lines.

PRETESTED PIPE – pipe that has been tested by the operator to 100 psig for at least one hour.

SERVICE LINE – a natural gas distribution line that transports gas from a common source of supply to a customer's meter, or to the connection to a customer's piping if the piping is farther downstream or if there is no meter.

SERVICE REGULATOR – a device designed to reduce and limit the gas pressure provided to a customer.

SERVICE RISER – the section of a service line which extends out of the ground and is often near the wall of a building. This usually includes a shut-off valve and a service regulator.

SHUT-OFF VALVE – a valve used to stop the flow of gas. The valve may be located upstream of the service regulator or below ground at the property line or where the service line connects to the main.

UPSTREAM – from a reference point, any point located nearest the origin of flow, that is, before the reference point is reached.

49 CFR – Title 49 of the Code of Federal Regulations (CFR). This document contains the actual safety regulations that must be complied with by the natural gas operator. Parts 190, 191, 192, and 199 of 49 CFR contain the federal pipeline safety regulations relevant to operators of natural gas pipeline systems.

COMMONLY ABBREVIATED ORGANIZATION/ACRONYMS

AGA – American Gas Association.

ANSI – American National Standards Institute, formerly the United States of America Standards Institute (USASI). All current standards issued by USASI and American Standard Association (ASA) have been redesignated as American National Standards Institute and continue in effect.

APGA – American Public Gas Association.

API – American Petroleum Institute.

ASME – American Society of Mechanical Engineers.

ASTM – American Society for Testing and Materials.

DOT – U.S. Department of Transportation.

GPTC – Gas Piping Technology Committee.

INGAA – Interstate Natural Gas Association of America.

MEA – Midwest Energy Association.

MSS – Manufacturers Standardization Society of the Valve and Fittings Industry.

NACE – National Association of Corrosion Engineers. (NACE International)

NFPA – National Fire Protection Association.

OPS – Office of Pipeline Safety. The pipeline safety division of the DOT's Pipeline and Hazardous Materials Safety Administration. For addresses of OPS regional offices, see the attached list of agencies and organizations.

PHMSA – Pipeline and Hazardous Materials Safety Administration. A major subdivision of the DOT, it includes the Office of Pipeline Safety. For addresses of regional offices, see the enclosed handout.

SGA – Southern Gas Association.

IV. OPERATION AND MAINTENANCE PLAN (192.605)

The purpose of the Operation and Maintenance Plan is to provide employees with procedures for the safe operation of this Master Meter Natural Gas Distribution System. These procedures have been prepared in accordance with Gas Pipeline Safety Rules and Regulations.

The Operation and Maintenance (O&M) Plan must be reviewed and updated by the operator **at intervals not exceeding 15 month, but at least each calendar year**. It is the responsibility of this organization to stay current with the Gas Pipeline Safety Rules and Regulations and to update the O&M Plan to reflect any changes in the rules and regulations. Revisions to the O&M Plan will also be made if there are any changes with our Master Meter Natural Gas Distribution System, including change in ownership and personnel.

The O&M plan, records and maps will be maintenance and retained in our office.

V. CONSTRUCTION (192.603(b)/221 and TAC 8.115)

New construction, replacements, or additions to the Master Meter Gas System shall be designed and constructed as required by the Gas Pipeline Safety Rules.

A. Excavation

Before digging for gas line installation, repair, or replacement, the pipe network and other underground utility lines on the property will be located.

B. Dept of Cover

Qualified personnel shall install gas piping. All gas service lines shall be installed with at least 12 inches of earth cover in tenant yards and 18 inches of cover in streets, roads and common areas. Gas mains shall have at least 24 inches of cover. Gas pipelines may be installed at greater depths, especially where soil erosion is prevalent.

Underground structures may prevent the installation of gas services or main lines at these minimum depths. At these locations, where the lines are able to withstand anticipated external loads, less cover will be allowed and the locations shall be marked aboveground. The areas shall be inspected frequently to ensure that the ground cover remains intact.

C. Regulators and Overpressure Equipment

Knowledgeable gas personnel shall size regulators and overpressure equipment so that overpressure or low-pressure conditions do not occur on the gas system.

D. Pipe Installation

Installation of piping facilities shall be made by those qualified as required by the safety rules. If a gas contractor works on this system, it is the responsibility of the owner/operator to ensure that the contractor follows these requirements.

1. Steel Pipe – General Directions

   Each joint made will be in accordance with written procedures that have been proven by test or experience to produce strong gas-tight joints. We will obtain and follow manufacturers' recommendations for each specific used. We will keep manufacturers' procedures and maintain them as part of this Operation and Maintenance Plan.

   All new steel pipe manufactured under any of the specification listed under Appendix B of the Gas Pipeline Safety Rules will have wall thickness design pressures up to at least 152 psig.

   The actual MAOP (Maximum Allowable Operating Pressure) of new or replacement pipe depends upon the pressure test performed on the piping system before it is put in service. Steel pipe will be handled without damaging the outside coating. Any gouges or scratches shall be repaired with an appropriate coating. Steel pipe will be coated or wrapped at all welded and mechanical joints before backfilling.

   Metal valves must meet the minimum requirements or the equivalent of API 6D, and must be stamped with either the class (ANSI) or the working pressure rating. Metal flanges and flange accessories shall meet the minimum requirements of ANSI B16.5 or MSS SP-44.

   New pipe will be pressure tested for leaks (with air by using a compressor) before backfilling. See Appendix B-8 for proper record keeping. Steel mains to be operated at less than one psig will be tested to at least 10 psig. Steel mains to be operated at one psig but not more than 40 psig will be given a leak test at a pressure of not less than 50 psig. Steel services to be operated above 40 psig are to be tested to 90 psig.

   The pipe will be supported along its length with proper bedding/backfill. Backfill material will not contain stones or cinders. Steel pipes will be cathodically protected. Dissimilar metals will be electrically insulated from one another.

2. Welding (Steel)

   Welding will be preformed in accordance with approved welding procedures that have been qualified under 49 CFR 192.225 to produce sound, ductile welds.

Welders will be qualified according to 49 CFR 192.227 and 192.229 for the approved welding procedure. Records of the qualified welding procedure will be retained in the main office along with a record of the qualified welder. Records of re-qualification of welders will also be retained at the office.

3. Plastic Pipe

Each plastic pipe joint will be made in accordance with written procedures that have been proved by test or experience to produce strong gas-tight joints. Procedures should be filed with our Plan and kept in the office. These procedures are those of the manufacturer of the pipe used in the system. We will retain a record of the persons qualified or re-qualified to make joints by these procedures. We will adhere to applicable procedures under 49 CFR 192.283, 192.285, and 192.287. Procedures required by the manufacturer for making mechanical joints will also be made available in the office. Polyethylene (PE) plastic pipe must be marked ASTM D2513 and shall be stored so as to minimize the possibility of the material being damaged by crushing, piercing, or extended exposure to direct sunlight.

The manufacturer of the pipe or fitting will supply us with his procedures for his specific product. Any contractor hired to install plastic pipe must use qualified written procedures that are compatible with pipe in the system. The contractor will be required to use a person qualified under 192.285 to make all joints.

Valves for use in plastic pipe must be designed and installed in a manner that will protect the plastic material. Plastic valves must be suitable for gas service being used in the system. The plastic pipe must be protected from excessive torsional (twisting) or shearing (cutting) loads when valves are operated. Valves must be protected from stresses that might be induced through the valve or its enclosure. Plastic pipe must be installed so that expansion and contraction of the pipe will not cause joint pullout or elongation necking.

When inserting plastic metal pipe, an allowance for thermal expansion and contraction must be made. Make an allowance at lateral and end connections, particularly those over 50 feet in length. End connections must be designed to prevent pullout caused by thermal contraction or expansion.

To minimize the stresses caused by thermal contraction, pipes inserted in the summer should be allowed to cool to ground temperatures before tie-ins are made. Inserted pipe, especially those pulled in, should be relaxed, mechanically compressed, or cooled to avoid initial tensile stress. When laying plastic pipe, there must be adequate slack (snaking) in the pipe to prevent pullout due to thermal contraction.

Repairs or replacements will be made for imperfection or damages, before placing the pipe in service.

Installation of all plastic pipe must be below ground level. When the pipe is installed in a vault or other below-grade enclosure, it must be completely encased in gas-tight metal pipe with fittings that are protected from corrosion. Plastic pipe that is not encased must have an electrically conductive wire or other means of locating the pipe underground. All plastic service lines shall be installed below ground.

The test pressure for plastic pipe shall be al least 150 percent of the maximum operating pressure or 50 psig whichever is greater. However, the test pressure will not be more than three times the design pressure of the pipe. See Appendix B-8 for proper record keeping.

To prevent any shear or other stress concentrations, external stiffeners shall be used at connections to mains, valves, meter risers, and other places where compression fittings are used.

Special care will be taken to prevent coat tar coatings or petroleum base tape from contacting the plastic pipe because it will cause the pipe to deteriorate.

Static electricity can ignite a flammable gas-air atmosphere. When working with plastic pipe and there is (or there may be) a possibility of a flammable gas-air atmosphere, the following precautions will be followed.

a. Use a ground wet tape conductor wound around, or laid in contact with the entire section of the exposed piping.

b. If gas is already present, wet the pipe with a very diluted water detergent solution starting from the ground end. Apply tape immediately and leave in place.

c. Wet the tape occasionally with water. When temperatures are below 0°C. (32°F.), add glycol to the water to maintain tape flexibility. Ground the tape with a metal pin driven into the ground.

d. Do not vent gas from an ungrounded plastic pipe or tubing. Vent gas only at a downwind location remote from personnel or flammable material.

e. Dissipating the static charge buildup with wet rags or a bare copper wire or other techniques may not be as effective.

f. Use of appropriate safety equipment; for example, flame resistant, clothing, breathing apparatus, fire extinguisher, etc.

E. Repair Methods – Plastic and Metal

Replacing gas lines and repairing leaks will only be performed by persons with adequate training and certification. If such personnel are not available, arrangements will be made with a qualified gas contractor to perform this work.

Leaks in service lines or mains may be repaired by cutting out a short length of pipe containing the leak and replacing it with a new segment of pipe.

Small leaks in steel service lines or mains, such as those resulting from corrosion pitting, will be repaired with a stainless steel band clamp applied directly over the leak. The pipe will be effectively cleaned to allow proper sealing of the clamp. All bare metal pipe and fittings installed below ground will be properly coated and cathodically protected before backfilling.

If several leaks are found and general corrosion has taken place, the most effective solution will be to replace the length of pipe that has deteriorated. For repairs, normal installation practices must be followed. They include priming and wrapping all bare metallic piping and fittings, proper grading of lines to the main, cathodically protecting the lines, etc.

If it becomes necessary to abandon or inactivate any part of the gas facility because of excessive corrosion pitting or for other reasons, the following procedure prevails:

1. Record the location of the abandoned or deactivated pipeline.
2. Record the date of the abandonment ore deactivation.
3. Record all work performed on the pipeline, such as disconnecting sources of gas supply or purging and sealing the abandoned pipeline in place.

To eliminate or prevent accidental ignition, the following action will be employed by company or contracted personnel:

1. Remove potential source of ignition.
2. Use gas detection equipment to determine presence of gas.
3. Provide fire extinguisher.
4. Post warning signs.
5. Prevent electric welding or pipe or cutting of pipe until area is clear of combustible gas.
6. Monitor gas area at all times until work is completed.

F. Proper Location and Design of Tenant Meters and Regulators

Before we install tenant meters and regulators, we will consider accessibility, protecting meter sets from damage, and protecting people from gas released at meter sets.

1. Location of Tenant Meters and Regulators (192.353)

    a. Install meters and service regulators in a readily accessible location. Protect the meters and regulators from corrosion and physical damage. Install meters outside whenever possible.

b. Service regulators installed within a building will be as close as practical to the point where the service line enters the building. We will vent the regulator to the outside.

c. Meter installation within a building must be located in a ventilated area. Also, it must be more than three feet from any source of ignition or any source of heat that might damage the meter.

d. It is best to locate the upstream regulator in a series outside the building. However, if may be located in a separate metering or regulating building.

e. Typical meter and regulator installation may be found on the following pages.

2. Protecting Tenant Meters and Regulators from Damage (192.355)

Tenant meters and regulators shall be protected from damage as listed below.

a. If tenant's equipment might create either a vacuum or a back pressure, a device must be installed to protect the gas system.

b. The outside terminal of each service regulator went and relief went must be:

1. Rain and insect resistant (turned down with screen).
2. Located where gas from the vent can escape freely the atmosphere; that is, vent it away from any opening into the building (if under mobile home, vent outside); and
3. Protect from water damage in areas where flooding may occur.

c. Meters and regulators must be installed so as to minimize stresses upon connecting piping.

d. Each regulator that is designed to release gas is its operation must be vented to the outside atmosphere away from openings into the building.

e. Each pit or vault that houses a tenant's meter or regulator where vehicular traffic could cause damage must be able to support that traffic.

3. Operating Pressure for Tenant Meter Installations (192.359)

a. A meter may not be used at a pressure that is more than 67 percent of the manufacturer's shell test pressure (67 percent x shell test pressure)

b. Each newly installed meter manufactured after November 12, 1970, must have been tested to a minimum of 10 psig.

4. Location of Valves on Service Lines (192.365)

   a. Relation to Regulator or Meter

      Each service-line valve will be installed upstream of the regulator. If there is no regulator, it shall be installed upstream of the meter.

   b. Outside Valves

      Each service line must have a shut-off valve in a readily accessible location outside of the building.

   c. Underground Valves

      Each underground service-line valve must be located in a covered durable curb box or standpipe that allows ready operation of the valve. The box or standpipe must not put stress on the service line.

   d. Service lines

      Service lines should not be installed under buildings or mobile homes. If a service is installed under a building, it must be encased in a gas- tight conduit. This conduit must vent outside to a point where gas would not be a hazard, and extend aboveground terminating in a rain and insect resistant fitting.

5. Common Problems at Service Risers and House Regulators

   a. Obstructed Vents

      The vent on the regulator should be free of any obstructions. A wire Serene installed I the vent should prevent the accumulation of dirt, the intentional insertion of foreign objects, or the build-up of insect nests. If the screen is removed, a new one must be inserted in its place. The vent should be pointed down and away from windows and air intakes.

   b. Tenant Move-out

      When applicable, the valve on the riser should be equipped with a locking device to be controlled only by authorized personnel. When tenants move out, the gas will be shut off and locked. The locking device on the shutoff valve also allows appliances to be repaired without the gas being turned on accidentally. All appliance valves will be kept in an off position until the day the tenant moves in.

c. Riser Misuse

The tenants should not be allowed to use the riser and its components for other purposes, such as an anchor for laundry lines, plant supports, bicycle racks, barbeque pit supports or tying and chaining any kind of object.

d. Corrosion

Check for corrosion on service riser at ground level. All portions of exposed pipeline facilities must be coated with rust proof paint to protect from atmospheric corrosion.

e. Turning on the Gas

Turning on the gas for a tenant involves three items: introduction of gas into the system; purging of line; and lighting and checking the appliances.

Although the plumber or the tenant often turns on gas, it is important that operator employees be well informed on the subject. When turning on the gas into tenant's lines, the stopcock should be opened very slowly. It should be remembered that one-fourth of a turn of the stopcock opens it fully.

The person opening a stopcock should have a wrench with adequate length and should turn the cock very slowly, listening for the introduction of gas. Once the sound of the gas entering the regulator and meter is heard, tuning should stop. This gives the gas time to enter the regulator, meter, and tenant's piping and allows the pressure to equalize and the regulator to shut off. In a very short time the sound of entering gas should cease and the stopcock can then be fully opened. This procedure should be followed because of the possibility of subjecting the diaphragms in the regulator and meter to undue forces if the stopcock is abruptly opened.

After the gas has been introduced into the meter installation and tenant's piping as specified above, if the test hand is observed moving, then there is either a leak or an open valve on the tenant's premises. If this happens, the stopcock should be closed and a check made to be sure that all valves on the upstream side of the tenant's appliances are in a closed position, and that there are not any openings without valves or caps.

If the cause of the escaping gas cannot be located, the gas must remain turned off. It is the tenant's responsibility to locate and correct the cause of the escaping gas.

If there is no evidence of escaping gas thought the meter, it will be necessary to purge the lines and light the appliances. If the tenant has a gas range, this is usually the best place to start purging. The top burners can be turned on and frequently checked to see if there is combustible gas

coming through the burner ports. The length of time it would take, of course, depends on the amount of pipe and the velocity of the gas. After it has been determined that there is some gas, it is a good practice to turn off all but one of the burners and keep on checking to determine when all of the air is out of the line. The burners can all then be checked and the pilots lit.

Appliances with safety pilots, such as furnaces and water heaters, offer a more difficult situation. If the major portion of the house pipe has been purged through the gas range, a limited amount of piping will be need to be purged to the other appliances. However, it would probably take an extremely long time to eliminate all of the air in the lines through the pilots.

In such cases, it is a common practice to loosen a union ring or tubing connector on the downstream side of the valve immediately before the appliance. By doing this slowly, a small amount of air can escape. Exercise extreme care when performing this because in most instances, water heaters and furnaces are in rather small closets and it is undesirable to permit much gas to escape. As soon as the odor of gas is detected, the valve should be closed and the union ring or tubing connector re-tightened.

Before proceeding with the purging and lighting of this particular appliance, wait four to five minutes so any gas present can dissipate into the atmosphere.

After four or five minutes have elapsed, finish the purging through the pilot. Although this process seems to take a long time, it is a very safe procedure and should be followed.

In most instances, it will be necessary to hold a plunger or valve top down in accordance with instructions on the appliances to permit the air or gas in the pipe to escape. Check the escaping gas or air periodically to determine when there is a continuous flame. After the pilot is burning properly, turn on the main burner by manipulating the thermostat and adjust air shutter for proper combustion.

Before leaving an appliance, make a soap test of all the connections between the appliance and the appliance itself, since a test of the house piping and service line did not include these.

At the time the meter is originally turned on, all connected appliances should be lit and adjusted. This includes the furnace when a tenant's service is turned on in mid-summer. It is better to light the furnace and then turn if off before leaving rather than to leave a bubble of air in the line to the furnace, which could possibly migrate to another part of the house piping and be the cause of a problem. For example, this could be the case if a range top burner was on and operating, and a bubble of air

passed through the house line and caused the pilot light and the burner to go out. If there were no one around, then gas would be escaping into the kitchen.

When turning gas on, it is better to take a little extra time and be sure that everything is in satisfactory working condition. It's like the old saying, "It's better to be safe than sorry".

VI. MAXIMUM ALLOWABLE OPERATING PRESSURE (192.619)

The system's established maximum allowable operating pressure is _____ psig/oz. This was established in accordance with the previous outline in 49 CFR 192:

_____ 49 CFR 192.619(a)(1)	For a system with customer service regulators, where pressure test is known.
_____ 49 CFR 192.619(a)(2)	
_____ 49 CFR 192.619(a)(3)	For a system with customer service regulators where pressure test not known (maximum pressure during the five years preceding July 1, 1970).
_____ 49 CFR 192.619(a)(4)	
_____ 49 CFR 192.619(a)(5)	
_____ 49 CFR 192.619(a)(6)	
_____ 49 CFR 192.619(c)	No service regulator (10 oz. Maximum)
_____ 49 CFR 192.621(a)(1)	
_____ 49 CFR 192.621(a)(2)	
_____ 49 CFR 192.621(a)(3)	
_____ 49 CFR 192.621(a)(4)	
_____ 49 CFR 192.621(a)(5)	
_____ 49 CFR 192.623(a)	

Applicable provisions are marked with an "X" otherwise they are <u>not</u> applicable. Records are available for each provision marked to substantiate the MAOP.

VII. SURVEILLANCE AND PATROLLING (192.613 and 192.721)

Every **three (3)** month(s) the pipeline right-of-way is walked and observed for factors affecting operation. Construction over or near the pipeline, signs or leakage indicated by dead vegetation or bubbles at the ground surface, exposure of aboveground piping to physical, and any other unusual conditions that effect safe operation are noted. Patrolling records will be kept in the office.

VIII. ODORIZATION (192.625 and TAC 8.215)

Every **three (3)** months we will perform a sniff test by releasing a small amount of gas at the meter loop or some other outlet to determine if there is a readily detectable odor. If the odor is weak or not detectable, we will contact out gas supplier so that he can correct the problem. A record of each odorization sniff test will be retained in our office.

IX. LEAKAGE SURVEYS (192.723 and TAC 8.220)

Leakage surveys of underground gas systems will be performed as frequently as necessary, but interval will not exceed **two** years, using leak detection equipment. The type and extent of the survey shall ensure detection, location, evaluation, and classification of any gas leakage. Persons knowledgeable in gas leak detection will be used. Areas of unusual high leakage problems will take precedence.

A. Warning Signs of a leak

A leak may be indicated by one or more of the following:

1. Odor
2. Vegetation
3. Insects (flies, roaches, spiders)
4. Fungus-like Growth
5. Sound
6. Unaccounted for Gas
7. Soap Bubble
8. Pressure Surveys
9. CGI Instruments

B. Surface Gas Detection Survey with Flame Ionization (FI) Instrument:

A continuous sampling of the atmosphere for buried mains and services will be made at ground level, or at no more than two inches above the ground surface. In areas where the gas piping is under pavement, samplings should also be at curb line(s), available ground surface openings (such as manholes, catch basins, sewer, power, and telephone duct openings, fire and traffic signal boxes, or cracks in the pavement or sidewalks), or other surfaces where gas is likely to vent. For exposed piping, sampling should be adjacent to the piping.

C. Subsurface Gas Detection Survey with Combustible Gas Indicator (CGI) Instrument:

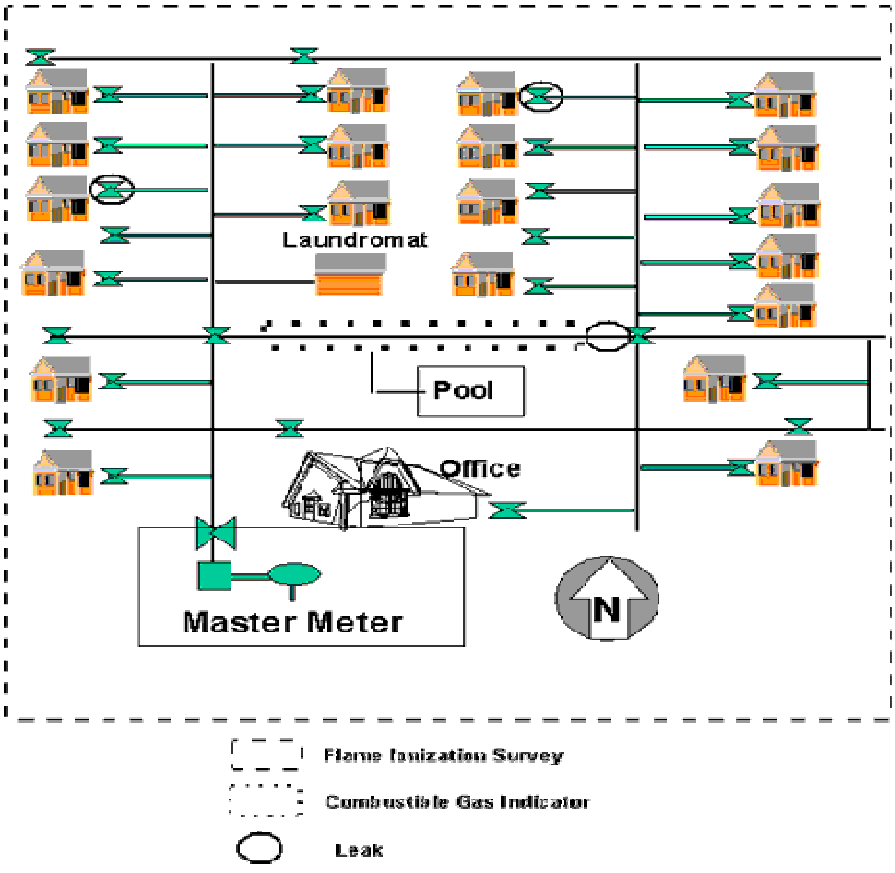
Any CGI used in a leak survey should be capable of detecting 10 percent of the Lower Explosive Limit (LEL). CGI test will be performed in a series of bar holes immediately adjacent to the gas facility and in available openings (confined spaces and small substructures).

The location of the gas facility and its proximity to building and other structures should be considered when determining the spacing of sample points. Spacing of sample points along the main or pipeline will depend on soil and surface condition but should never be more than 20 feet apart. Where the facility passes under paving for a distance of 20 feet or less, tests should be made at the entrance and exit points of the paved area. Where the paved area over the facility is 20 feet or more in length, sample points should be located at intervals of 20 feet or less.

D. Records

All records required to satisfy inspection and reporting requirements under this plan, including all leakage surveys, leaks found, and all repair data will be maintained and kept on site.

1. A map of the distribution system must be marked annually to show leak surveys conducted and the areas tested. Indicate the approximate location of each leak found. (*Sample figure*)



E. Leak Classification and Action: (TAC 8.207)

All detected leaks will be classified for severity and repaired according to TAC 8.207:

GUIDE MATERIAL FOR "LEAK CLASSIFICATION AND ACTION CRITERIA

FOLLOW-UP INSPECTION

The adequacy of leak repairs should be checked before backfilling. The perimeter of the leak area should be checked with a CGI. Where there is residual gas in the ground after the repair of a Class 1 leak, a follow-up inspection should be made as soon as practical after allowing the soil atmosphere to vent and stabilize. OPS suggests follow-up inspection within 24 to 48 hours, but in no case later than 1 month following the repair. In the case of other leak repairs, qualified personnel should determine the need for a follow-up inspection.

A method to remember when investigating gas leaks and determining the classification is to ask, "WHERE is the Gas?" as follows:

- **Where is the gas? (Use a detector to confirm gas is present)**
- How much is there? (Take readings on the CGI)
- Extent of the spread? (Determine the migration pattern)
- Relation to other structures? (Is gas detected in or near buildings or in manholes?
- Evaluate/evacuate? (Classify the leak and take appropriate action)

LEAK CLASSIFICATION AND ACTION CRITERIA-GRADE 1

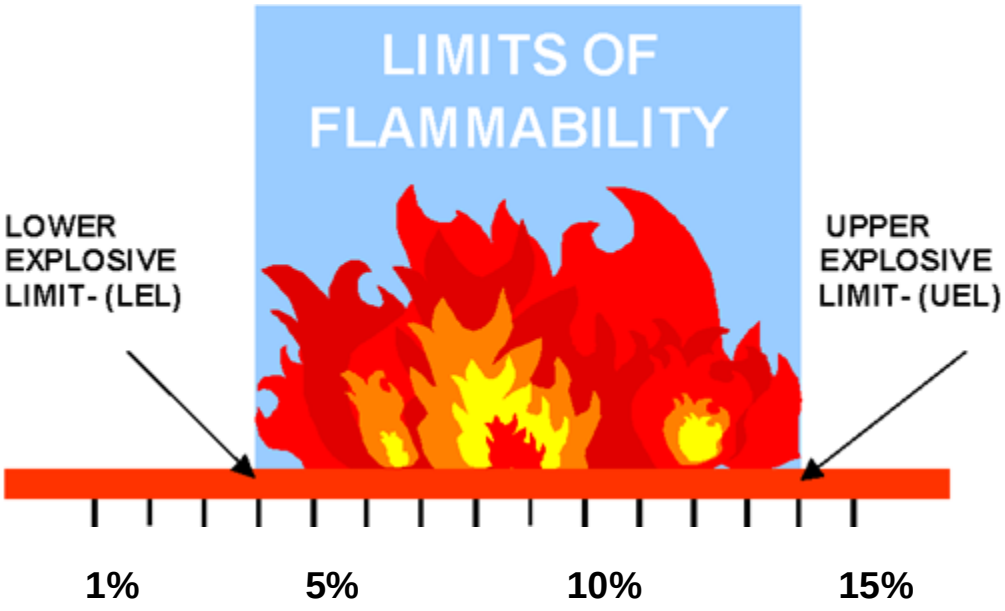
GRADE	DEFINITION	ACTION CRITERIA	EXAMPLES
1	A leak that represents an existing or probable hazard to persons or property, and requires immediate repair or continuous action until the conditions are no longer hazardous.	Requires *prompt action** to protect life and property, and continuous action until the conditions are no longer hazardous. *The prompt action in some instances may require one or more of the following: a. Implementation of company emergency plan (§192.615). b. Evacuating premises. c. Blocking off an area. d. Rerouting traffic. e. Eliminating sources of ignition. f. Venting the area. g. Stopping the flow of gas by closing valves or other means. h. Notifying police and fire departments.	1. Any leak which, in the judgment of operating personnel at the scene, is regarded as an immediate hazard. 2. Escaping gas that has ignited. 3. Any indication of gas which has migrated into or under a building, or into a tunnel. 4. Any reading at the outside wall of a building, or where gas would likely migrate to an outside wall of a building. 5. Any reading of 80% LEL, or greater, in a confined space. 6. Any reading of 80% LEL, or greater in small substructures (other than gas associated sub structures) from which gas would likely migrate to the outside wall of a building. 7. Any leak that can be seen, heard, or felt, and which is in a location that may endanger the general public or property.

LEAK CLASSIFICATION AND ACTION CRITERIA-GRADE 2

GRADE	DEFINITION	ACTION CRITERIA	EXAMPLES
2	A leak that is recognized as being non-hazardous at the time of detection, but justifies scheduled repair based on probable future hazard.	Leaks should be repaired or cleared within one calendar year, but no later than 15 months from the date the leak was reported. In determining the repair priority, criteria such as the following should be considered: a. Amount and migration of gas. b. Proximity of gas to buildings and subsurface structures. c. Extent of pavement. d. Soil type and soil conditions (such as frost cap, moisture and natural venting). Grade 2 leaks should be reevaluated at least once every six months until cleared. The frequency of reevaluation should be determined by the location and magnitude of the leakage condition. Grade 2 leaks may vary greatly in degree of potential hazard. Some Grade 2 leaks, when evaluated by the above criteria, may justify scheduled repair within the next 5 working days. Others will justify repair within 30 days. During the working day on which the leak is discovered, these situations should be brought to the attention of the individual responsible for scheduling leak repair. On the other hand, many Grade 2 leaks, because of their location and magnitude, can be scheduled for repair on a normal routine basis with periodic reinsertion as necessary.	A. *Leaks Requiring Action Ahead of Ground Freezing or Other Adverse Changes in Venting Conditions.* Any leak which, under frozen or other adverse soil conditions, would likely migrate to the outside wall of a building. B. *Leaks Requiring Action Within Six Months* 1. Any reading of 40% LEL, or greater, under a sidewalk in a wall-to-wall paved area that does not qualify as a Grade 1 leak. 2. Any reading of 100% LEL, or greater, under a street in a wall-to-wall paved area that has significant gas migration and does not qualify as a Grade 1 leak. 3. Any reading less than 80% LEL in small substructures (other than gas associated substructures) from which gas would likely migrate creating a probable future hazard. 4. Any reading between 20% LEL and 80% LEL in a con-fined space. 5. Any reading on a pipeline operating at 30 percent SMYS, or greater, in a class 3 or 4 location, which does not qualify as a Grade 1 leak. 6. Any reading of 80% LEL, or greater, in gas associated sub-structures. 7. Any leak which, in the judgment of operating personnel at the scene, is of sufficient magnitude to justify scheduled repair.

LEAK CLASSIFICATION AND ACTION CRITERIA-GRADE 3

GRADE	DEFINITION	ACTION CRITERIA	EXAMPLES
3	A leak that is non-hazardous at the time of detection and can be reasonably expected to remain non-hazardous.	These leaks should be reevaluated during the next scheduled survey, or within 15 months of the date reported, whichever occurs first, until the leak is regraded or no longer results in a reading.	*Leaks Requiring Reevaluation at Periodic Intervals* 1. Any reading of less than 80% LEL in small gas associated substructures. 2. Any reading under a street in areas without wall-to-wall paving where it is unlikely the gas could migrate to the outside wall of a building. 3. Any reading of less than 20% LEL in a confined space.



NATURAL GAS-IN-AIR MIXTURE

This is an illustration of the lower and upper explosive limits for natural gas. Typical natural gas is flammable in 4 to 14 percent natural gas in air mixture. In a confined space, a 4 to 14 percent mixture can be explosive.

Grade 1 Leaks

A leak that represents an existing or probable hazard to persons or property and requires immediate repair on continuous action until the conditions are no longer hazardous.

Examples of Grade 1 leaks:

a. Evidence that gas has migrated into or under a building or to the outside wall of a building;
b. Any leak that can be seen, heard, or felt at the ground surface and;
c. Is in a location that might endanger the public or property.

Grade 2 leaks

A leak that is non-hazardous at the time of detection, but could become hazardous if repair is not accomplished in a reasonable length of time.

Grade two leaks will be repaired as soon as possible or within 3 months of discovery.

Grade 2 leaks will be monitored every 30 days.

Grade 3 leaks

A leak that is non-hazardous at the time of discovery and can be reasonably expected to remain non-hazardous.

Grade 3 leaks will be monitored every three months and repaired within a year of discovery.

X. **HANDLING LEAK COMPLAINTS** (TAC 8.205)

All leak reports shall be thoroughly investigated and action taken to ensure that no hazardous conditions exist at the close of the work day. Persons trained or qualified in using leak detection equipment, locating the leakage source, and determining the degree of hazard will be available to respond to leak reports. We shall receive leak reports 24 hours a day, seven days a week, at this phone number:

( ) _____	( ) _____
Office Hours	After Hours

For each call received, a record will be kept showing the following information

1. Date and time call was received.
2. Name of person making complaint.
3. Name of person receiving complaint.
   (Name of person receiving complaint if authorized person is not present.)
4. Action taken to resolve complaint.
5. Date and time complaint was resolved.
6. Name of person resolving the complaint.
7. Area in which leak was detected.

If a leak is found downstream of the meter or the connection to a tenant's piping, gas will be shut off by locking off the service valve, removing the meter and plugging or capping the lines, or using some other method to prevent the unauthorized flow of gas to the tenant. Before turning the gas back on as when inaugurating service to a new tenant, confirm that the piping is leak free by performing a pressure test or meter shut-in test. Turn-on is not complete until all lines are purged of air and each appliance is lighted and checked for proper operation.

Records

All leak complaints received from customers or tenants must be recorded and copies will be kept in the office.

XI. KEY VALVES (192.747 AND 192.181)

Key valves are at the following locations (normally one valve at the master meter):

To ensure that all valves designated as key valves are operable during emergencies, they will be checked and serviced **once a year not to exceed 15 months**. To check and service a valve, we will partially operate it, being careful not to disrupt service. If necessary, we may lubricate the valve and protect it from corrosion.

XII. CORROSION CONTROL (192.451)

The design, installation, operation, and maintenance of the cathodic protection system will be carried out by, or under the direction of, a person qualified by experience and training in pipeline corrosion control methods.

All new construction, replacement, or extension of underground metallic gas pipelines installed on or after August 1, 1971, will be constructed with coated pipe and have a cathodic protection system installed along the entire length of pipe.

Steel piping installed before August 1, 1971, will have cathodic protection installed in areas of active corrosion. Unprotected piping will be reevaluated for active corrosion every three years, at intervals not exceeding 39 months. (192.481)

Risers connected to underground plastic pipe will be constructed using anodeless risers or have cathodic protection applied.

We determined that this system will use the following criteria as found under Appendix D or 49 CFR 192 for Cathodic Protection and Determination of Measurements.

Criteria: _____
(1, 2, 3, 4, or 5)

Cathodically protected pipe will be electrically monitored for the proper level of protection at least once each calendar year, but with intervals not exceeding 15 months. (192.465a) The piping will have sufficient test stations installed, or have other contact points for electrical measurements, to determine if the cathodic protection is adequate. When rectifiers are used to provide cathodic protection, they will be inspected six times each calendar year, with intervals not to exceed 2-1/2 months. (192.465b)

All aboveground gas piping will be protected from atmospheric corrosion. (192.479)

This includes meters, fittings, and aboveground pipes at creek crossings, road crossings, etc. A good metallic paint applied to a clean surface will be used to prevent atmospheric corrosion. Monitor interference bonds if applicable. Keep map of corrosion control facilities. (192.491)

When buried pipelines are exposed, they will be monitored. When any portion of a buried pipeline is exposed, the exposed portion will be examined for evidence of external corrosion. Prompt remedial action is required if deficiencies are found.

XIII. REGULATORS AND OVERPRESSURE EQUIPMENT

This equipment will be inspected and tested by a qualified person. Each pressure limiting, relief device and pressure regulating station will be inspected to ensure:

a. It is in good mechanical condition;
b. Adequate from the standpoint of capacity and reliability of operation for the service in which it is employed;
c. Set to function at the correct pressure; and
d. Properly installed and protected from dirt, liquids, or other conditions that might prevent proper operation.

These inspections will be done **once a year not to exceed 15 months**.

TAC 8.220: (c) Overpressure equipment. Natural gas suppliers shall be responsible for installation and inspection of overpressure equipment at those master meter locations where 10 or more consumers are served low-pressure gas.

XIV. RECORDS (192.13, 192.605)

All inspection, construction, and operating records and maps will be maintained and made available for inspection.

XV. PIPELINE SAFETY PROGRAM FEES (TAC 8.201)

We will comply with all the Pipeline Safety Fee requirements as described under **Title 16 Texas Administrative Code Rule 8.201**

We shall pay the annual inspection fee of $100 no later than June 30 of each year.

XVI. PLASTIC PIPE REQUIREMENTS (TAC 8.225)

We will comply with all the Plastic Pipe Requirements as described under -
Title 16 Texas Administrative Code Rule 8.225

Form PS-81, **Plastic Pipe Inventory Report** will be submitted to the Commission no later than March 15 of each year.

XVII. PUBLIC AWARENESS (192.616)

We will comply with all the Public Awareness requirements as described under -
Title 49, Code of Federal Regulations, Rule 192.616

A copy the Public Awareness Plan will be kept in our office and made available for inspection.

Note: For Public Education and Samples see Emergency Plan

XVIII. ORGANIZATION REPORT: Form P-5 (TAC 8.51)

Form P-5 will be filed with the Commission in accordance with -
Title 16, Texas Administrative Code, Rule 8.51.

TAC 8.225
(b) Each master meter operator, operating wholly or partially within this state, acting either as principal or as agent for another, and performing operations within the jurisdiction of the Commission, shall have on file with the Commission an approved organization report (Form P-5) as authorized by Texas Utilities Code §121.201(a)(2), but is not required to furnish the financial security required by Texas Natural Resources Code, §91.109(b)(2) if the operation of one or more master metered systems is the only business for which the financial security would otherwise be required.