

**SMALL GAS OPERATOR
OPERATION AND MAINTENANCE PLAN
(NATURAL GAS SYSTEM)**

Facility Name: _____

Address: _____

QUALIFIED PERSONNEL

All tasks shall be completed by a person that is qualified to that task (see operator's qualification of individuals and record of qualifications) record shall be maintained for a period of five (5) years. This is per CFR 192.801, Sub Part N.

OPERATING PROCEDURE

The personnel responsible for the operation and maintenance of the gas system must be trained in the use of the procedures contained in this Operation and Maintenance Plan. The plan will be reviewed once each calendar year not to exceed 15 months by all applicable personnel. A record of review will be maintained (record annual reviews on the last page of this plan. (192.603) (a)

PRESSURE LIMITATIONS

A pressure test shall be conducted at the earliest opportunity to establish the maximum allowable operating pressure (MAOP) unless adequate documentation is provided that establishes MAOP.

MAOP of the system is: _____ Operating Pressure of the system is _____

DISTRIBUTION SYSTEM

The distribution system consists of the following:

<u>DIAMETER OF PIPE</u>	<u>TYPE MATERIAL</u>	<u>FT ABOVE GROUND</u>	<u>FT BELOW GROUND</u>	<u>TOTAL FEET</u>	<u>DATE INSTALLED</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

ODORIZATION

Gas odorant will be verified quarterly. Test will be conducted by a "Sniff Test". The use of two persons is recommended. If odorant is not detected, the gas supplier will be notified immediately for action to be taken to odorize the system (see Section No. 5 - Record No. 1). The Office of Pipeline Safety shall be notified when odorant is not detected at (602) 252-4449.

LEAKAGE SURVEYS

There shall be a leak survey conducted on all portions of the operator's gas distribution system at intervals not exceeding 15 months, but at least once each calendar year. All leaks will be repaired promptly. A record will be made of all leaks and repairs (see Section No. 5 - Records No. 2 and 2A). If pipeline is enclosed in or behind walls and ceilings and a leakage survey isn't possible then a pressure test shall be required annually not to exceed 15 months.

VALVE MAINTENANCE ON DISTRIBUTION SYSTEMS

Exterior key valves in the distribution systems shall be inspected, operated, and lubricated (if necessary) at intervals not exceeding 15 months, but at least once each calendar year (see Section No. 5 - Record No. 4).

JOINING OF PIPE OTHER THAN WELDING

P.E. PIPE

Mechanical joints must have an internal stiffener for compression type couplings, and installed as per Manufacturer Procedure. (192.281)

PVC

Solvent/Cement must conform to ASTM D 2513-99 and installed as per Manufacturer Procedure.

COUPLINGS

Compression Couplings (192.283) must include Pipe Pullout Restraint capability/System and installed as per Manufacturer Procedure.

Viega Couplings and Shark Bite Couplings are not an approved fitting.

CORROSION CONTROL

Metal piping systems will be protected from the effects of rust (corrosion).

Aboveground piping and below ground piping must be electrically separated by the use of isolation flanges / unions (flanges/unions that have a non-conductive electrical gasket separating the two parts).

Aboveground piping will be protected by the use of coatings (painting) of the pipe. This will place a barrier between the pipe and the outside elements. This protection must be suitable to prevent corrosion caused by moisture, i.e.: rain, fog, sprinklers, coolers, or any other source of water.

Below ground piping will be protected from the effects of rust through the use of approved coatings and cathodic protection. Cathodic protection is a procedure in which under ground metal piping is protected from corrosion by either sacrificial anodes or the use of special anodes and an electrical rectifier. To achieve and maintain corrosion prevention of underground metal piping, electrical readings of the pipe-to-soil must be taken once each calendar year not to exceed 15 months between tests.

Electrical readings are measured with the use of a voltmeter and a reference cell (copper sulfate cell). The voltmeter must be set to read, Direct Current Volts, which will be indicated on the display screen by the symbol VDC. Electrical readings indicated by the voltmeter shall be a minimum of - 0.85 volt. Anytime a reading is less than - 0.85 volt, investigation and repair will be completed to ensure the continued prevention of corrosion. (Voltmeter must be of high impedance type and verified before each use)

Electrical readings must be taken at a sufficient number of locations and near mid-points **between** sacrificial anodes to assure steel piping is being adequately protected (see Section No. 5 - Record No. 5).

When an electrical rectifier is used to prevent corrosion on steel piping, the rectifier will be inspected 6 times each calendar year not to exceed 2 1/2 months. The inspection will include the reading of the amps and volts the rectifier is operating at (see Section No. 5 - Record No. 6).

DAMAGE PREVENTION

No person or company shall begin any excavation on the operator's properties before notifying the operator. When notified of an excavation, the operator will locate their natural gas lines as local Rules require. All marks for gas lines will be yellow in color. Location requests will be documented. (192.614)

INVESTIGATIONS OF FAILURES

Reportable failures and accidents are to be reported to the Arizona Corporation Commission, by telephone, as soon as possible at (602) 252-4449.

If it is determined that the location of gas facilities contributed to an accident or failure, action will be taken to minimize the possibility of recurrence. (192.617)

PURGING GAS LINES

If purging gas lines is to be done, the operator will have a detailed written procedure. This applies to the distribution gas lines and the building interior gas lines. (192.629) (a)

TAPPING PIPELINES UNDER PRESSURE

If tapping under pressure is to be done, the operator will have a detailed written procedure. (192.627)

PIPELINE SUPPORTS AND ANCHORS

Pipeline supports on an exposed line must be made of noncombustible material. (192.161)(b)

REPAIR METHODS - PLASTIC AND METAL

Repairs will only be completed by persons with training and experience. If such personnel are not available, arrangements will be made with a qualified gas contractor or gas company to perform such work. All work will comply with Title 49, CFR part 192. Records should be maintained for all repairs made to the operator's natural gas system. (Records should be maintained for the life of the system)

ABANDONMENT OF DISTRIBUTION GAS LINES

If the gas lines are to be abandoned in place, they shall be physically disconnected from the gas system. The open ends of the lines shall be plugged or capped. Purging the abandoned lines, to prevent the development of a potentially hazardous condition, will be done by filling the line with water or an inert material. Abandoned gas lines shall be indicated on the system maps. (192.727)

All gas valve boxes shall be filled to grade with sand or a suitable substitute.

DISCONTINUED SERVICE

Whenever gas service to a unit is discontinued, one of the following will be complied with:

- The valve that is closed to prevent the flow of gas into the unit must be provided with a locking device or other means designed to prevent the opening of the valve by persons other than those authorized by the operator.
- A mechanical device or fitting that will prevent the flow of gas must be installed in the service line riser.
- The unit must be physically disconnected from the gas supply and the open pipe sealed. (192.727)

PRESSURE TEST REQUIREMENTS

Each new, replacement, reinstated or uprated pipe will be subjected to the pressure test required in accordance with 49 CFR 192, prior to being filled with gas and put in service.

Systems operating below one (1) PSIG: (Steel and Plastic)

*Steel - Test at 10 PSIG for one hour. Test gauge shall be a minimum of 15 PSIG and **calibrated** on 1/10 PSIG increments. (192.509(b))

*Plastic - Test at 50 PSIG for one hour. Test gauge shall be a minimum of 100 PSIG and **calibrated** on 1 PSIG increments. (192.513(c))

* If tests are required by local jurisdictions, tests shall be that which is more restrictive.

* “Drop Tests” are not permitted.

System operating at one (1) PSIG or greater:

This test consists of putting 90 PSIG or 1 1/2 times the MAOP of the system, whichever is greater on the line after it has been fabricated and placed in the trench and **just prior to making the tie-in connections**. The test pressure will be applied, given time to stabilize and test observed for the time duration of one hour (test gauge shall be **calibrated** on one (1) PSIG increments). (See section No. 5 Record No. 3)

SERVICE REGULATORS

Regulators will be inspected for proper operation each time it is changed or turned on. (192.739(a))

RECORDS KEEPING PROCEDURES

Records will be maintained and readily available on all new piping system installations, repairs and/or changes to existing piping systems in sufficient detail to provide historical information, physical location, design ratings, and any other pertinent data necessary for the safe and continuous operation and maintenance of the system and should be filed as a permanent record for the life of the system. (192.603)

SYSTEM MAPS

System maps should be updated on as needed basis. Current map will be detailed enough to conduct a complete survey of the gas system. (192.605(b) (3))

ANNUAL REPORT

Annual report for the preceding calendar year will be completed and mailed to the ACC Office of Pipeline Safety by **April 15** (see Section 6). Report will be mailed to ACC Office of Pipeline Safety, 1300 West Washington Street, Suite 220, Phoenix, Arizona 85007. (R14-5-204) (A)

PUBLIC AWARENESS

The public awareness notice is located on Records No. 8 & 9. The notice must be posted in a public area accessible to all tenants for review, or, a written copy of the notice will be provided to each existing and/or new tenant. If a copy of the notice is provided to each tenant, a record shall be made that identifies the tenant and the date the notice was given to the tenant. This record shall be kept on file for at least five (5) years.

A record must also be made for each receipt of a request to locate the underground pipeline facilities, and kept on file. (192.616) (j)

PREVENTION OF ACCIDENTAL IGNITION

Each operator shall take the necessary actions to minimize and or eliminate all sources of ignition in all environments where the presence of Natural Gas or Propane vapors may constitute a hazard of fire or explosion.

Every operator must develop a procedure to address the prevention of accidental ignition covering any task on the pipeline that may result in the release of Natural Gas or Propane including but not limited to; venting, purging, tapping, cutting, repairing and replacing pipeline, etc. (192.751)

OPERATION AND MAINTENANCE ANNUAL REVIEW

<u>NAME/PRINT</u>	<u>SIGNATURE</u>	<u>TITLE</u>	<u>DATE</u>