Natural Gas Piping Safety
Initiating a Natural Gas Piping Permit

A permit is required for a maintenance employee, contractor, or subcontractor for any operation that involves natural gas piping blows, purging and/or venting.

A request for a permit shall be made to the Maintenance Manager or Maintenance Supervisor on the day that the natural gas piping work is to be performed.
Issuing a Natural Gas Piping Permit

Maintenance Manager or Maintenance Supervisor

- Responsible for filling out the Natural Gas Piping Permit.
- Shall inspect the work area before filling out the permit.
- Permit shall be filled out before natural gas pipe work is initiated.
Natural Gas Piping Permit

Permit shall

- Indicate location
- Short description of work being performed
- Name of employee, contractor or subcontractor performing the work

The permit is only good for the date and time indicated in the permit expires section of the permit.
Before Work Begins

Maintenance Manager or Maintenance Supervisor shall review the list of precautions listed on the permit with affected maintenance employees, contractors or subcontractors.

The Maintenance Manager or Maintenance Supervisor shall then sign the permit and have the attached copy posted at the work location so work can begin.
Performing Natural Gas Piping Work

When working on natural gas piping, there are three types of work that may need to be performed.

- Gas Pipe Blowing
- Gas Pipe Purging
- Gas Pipe Venting
Gas Pipe Blowing

Will be required when a section of new piping is being installed so that welding slag, particles, etc. are removed from the piping.

Only air, nitrogen, or pigging shall be used to blow down pipe. NO natural gas or other flammables.

Affected upstream gas valve(s) shall be LO/TO.
Gas Pipe Purging

May be required to remove air from natural gas piping.

Examples

- Installing a new section of gas pipe or recharging a gas pipe after a component has been replaced.

Affected upstream gas valves(s) shall be LO/TO to connect a hose or pipe to the drip leg, open end of pipe, port, etc. to ensure any gas is exhausted to the outdoor atmosphere.
Gas Pipe Purging

The hose or pipe discharge end shall have a shut off valve to control flow in the event of an emergency.

Located at least 35 feet away from mechanical air intake openings.

The discharge point shall not be located under awnings, roof edges, etc. that could trap pockets of gas.
Gas Pipe Purging

Affected maintenance employees, contractors, or subcontractors, shall continuously monitor the line break area for safe levels (Oxygen 19.5% – 23% and Lower Explosive Limit below 5%) using a multi-gas detector in the area of the line break (open drip leg, union, valve, etc.) to prevent exposure and explosions.
Gas Pipe Purging

Odor fade can occur relying on smell and will not be used as a substitute for a multi-gas detector.

All sources of ignition (electricity, flame, spark, etc.) within 35 feet from the line break or purge discharge shall be removed or turned off.
Gas Pipe Purging

Access (35 feet) around the line break or purge discharge shall be restricted so that only authorized personnel enter.

The outside purge area shall be restricted by means of a look out. The lookout will be responsible for continuously attending and monitoring with a combustible gas indicator.
Gas Pipe Purging

Purging operations shall be stopped when 90% fuel gas by volume is detected in the line.

The maintenance employee will be allowed two attempts of lighting the burner. If the burner does not light properly after two attempts, the Maintenance Manager shall be notified.
Gas Pipe Purging

Exception

- 2” or less diameter pipe that is six feet or less in length, purging natural gas to the outside atmosphere using a hose or pipe, removing sources of ignition, restricting personnel, and attending and monitoring with a combustible gas indicator will not be required.

Example

- Replacing an existing gas water heater that has a gas pipe shut off valve located three feet away from the water heater.
Gas Pipe Venting

Required to remove gas from natural gas piping.

Examples include removing an old section of pipe or disconnecting pipe for valve or gas operated equipment repairs/replacement.

Affected upstream gas valves(s) shall be LO/TO, a hose or pipe will be connected to the drip leg, open end of pipe, port, etc. to ensure any gas is exhausted to the outdoor atmosphere.
Gas Pipe Venting

The hose or pipe discharge end shall have a shut off valve to control flow in the event of an emergency.

Located at least 35 feet away from mechanical air intake openings.

The discharge point shall not be located under awnings, roof edges, etc. that could trap pockets of gas.
Gas Pipe Venting

Affected maintenance employees, contractors, or subcontractors, shall continuously monitor the line break area for safe levels (Oxygen 19.5% – 23% and Lower Explosive Limit below 5%) using a multi-gas detector in the area of the line break (open drip leg, union, valve, etc.) to prevent exposure and explosions.
Gas Pipe Venting

Odor fade can occur relying on smell and will not be used as a substitute for a multigas detector.

All sources of ignition (electricity, flame, spark, etc.) within 35 feet from the line break or vent discharge shall be removed or turned off.
Gas Pipe Venting

Access (35 feet) around the line break or vent discharge shall be restricted so that only authorized personnel enter.

The outside vent area shall be restricted by means of a look out. The lookout will be responsible for continuously attending and monitoring with a combustible gas indicator.

Venting operations are considered complete when the level drops to 5% fuel gas by volume in the line.
Gas Pipe Venting

Exception

- For a 2” or less diameter pipe that is six feet or less in length, venting natural gas to the outside atmosphere using a hose or pipe, eliminating or removing sources of ignition, restricting personnel, and attending and monitoring with a combustible gas indicator will not be required.

Example

- Replacing an existing gas water heater that has a gas pipe shut off valve located three feet away from the water heater.
Completing the Natural Gas Piping Permit

The Maintenance Manager or Maintenance Supervisor shall be notified for the permit’s final check signature.

The Maintenance Manager or Maintenance Supervisor shall sign off on the final check section of the posted permit and forward it to the EHS Manager.
Completing the Natural Gas Piping Permit

If a Maintenance Manager or Maintenance Supervisor who issued the permit is not available, the next available Maintenance Manager or Maintenance Supervisor will conduct the final check and sign-off on the permit.
Questions?