

Useful Information Concerning Natural Gas Loss

1. Unknown leaks (Leak survey by skilled personnel)
2. Line breaks – auto, bulldozer, other outside forces (One-call system)
3. Broken meters – don't read. (Meter readers report – check past readings)
4. Defective meters – slow reading. (Change out program every 10 years)
5. Installing wrong index on meters. (Ask a measurement expert)
6. Installing too small a meter for customer. (Proper sizing, check for additional appliances)
7. Reading meters wrong – employees. (Conduct school/training)
8. Paper conversion of MCF from therms, decatherms to CCF, etc. (Bookkeeping, education)
9. Temperature differential – All gas is corrected and sold at 60 degrees Fahrenheit. A 5-degree change in gas temperature will affect measurement by 1%. Average heating season temperatures is 40 degrees Fahrenheit, equating to a 4 percent loss. (Temp and press compensating meters)
10. Pressure differential – every fifteen hundredths (15/100) of PSIA change will affect measurement by 1%. AGA promotes 14.73. For every 4" water column pressure above the defining standard cubic foot, an account meter will read 1% less volume. Super compressibility is also very important. (Correct measurement base for your location)
11. Increased pressure – leaks more CF Gas from same holes. (Reduce pressure in warm weather)
12. Purging service lines, mains, taps during replacement of lines or new construction with gas. (Estimate loss and deduct; not paid for, but accountable)
13. Relief Valve opening and discharging gas. (Remove reason for opening)
14. Installing wrong size orifices in regulator. (Check book or manufacturer)
15. Purchasing less gas in current year than in prior years. (Leaks same, percentage change)
16. Packing lines during new construction. (This gas is never sold)
17. Stolen gas. (Meter readers – check and report)
18. Unmetered gas or not reading meters located at peak shaving plants, heaters in service buildings, city or company buildings, offices, etc. (Meter all gas)

More Useful Information

1. Natural gas is lighter than air, it will rise.
2. A natural gas mixture containing less than 4% gas will *not* burn. LEL (lower explosive limit), a natural gas-air mixture containing more than 14% gas will *not* burn. UEL (upper explosive limit)
3. For every 100 pounds of pressure reduction, there is approximately a 7-degree drop in temperature.
4. For every 5 degrees of temperature drop, there is approximately a 1% increase in unaccounted for gas.
5. 1 BTU is the amount of heat necessary to increase one pound of water, one degree at sea level.
6. 1 Therm = 100,000 BTU's. Mill means 1000.
7. Plastic pipe will have linear movement with insertion burial expansion and contraction of 1 inch per 100 feet for every 10 degrees Fahrenheit temperature change.
8. For every ampere of current leaving a pipeline in a year's time, 20 pounds of steel will be eaten up.
9. The half-cell of a pipe to soil meter should be *directly* over the buried pipe to secure a true reading.
10. Magnesium MQ = 1.75 V
Zinc ZN = 1.1 V
Iron/Steel FE – 0.50 V
Copper CU – 0.0 V
A higher negative will corrode to a smaller negative metal.
11. The negative side of a rectifier is connected to the underground pipe. (Make sure yours is not reversed). Positive or plus side goes to the ground bed.
12. Readings on pipelines:
 - a. Plus to negative is an anode area.
 - b. Negative to plus area is a cathodic area.
13. Cathodic protection working properly places a hydrogen film around the outside of metal pipe.
14. The top of a buried magnesium anode should be *lower* than the bottom of the pipe.
15. Magnesium anodes perform better in an upright position (vertical) rather than lying on its side in a horizontal position. Anodes should be away from the pipe such as the length of wire coming out of the anode.
16. DOT indicates potential readings do not have to be taken of pipe under concrete or pavement. If you desire to take a reading at some point, a wet sponge or towel will help to make contact.